



Route 62 Smart Transportation Study

Oil City, Pennsylvania

imagination.

innovation.

involvement.

impact.

October 2010



ACKNOWLEDGMENTS

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Section 1.0 Introduction





Section 1.0 Introduction

The City of Oil City is located in Venango County at the confluence of Oil Creek at the Allegheny River. Oil City is bordered by Cornplanter Township, Cranberry Township, and Sugarcreek Borough. The City encompasses 4.7 square miles of a predominately rural community of wooded lots and rolling hills. The region of Oil City was first established as an American settlement in the early 1800s, but grew in size and population following the development of commercial oil wells, refineries and support businesses. The growth of Oil City was a direct result of its location where Oil Creek and the Allegheny River come together, and the use of the Allegheny River as the primary means of transporting the local resources.

The downtown area of Oil City is split by the Allegheny River. The two areas of Oil City's downtown are commonly known as the "north side" and "south side." US Route 62 runs through Oil City and provides access to the City's south side area. US Route 62, or East Front Street/East First Street as it is named on the south side, runs along the Allegheny River through the downtown area and crosses the River by way of Petroleum Street.

Section 1.1 Plan Purpose

Venango County, in cooperation with the City of Oil City, realized the need to examine the land use and transportation needs impacting the sustainability, accessibility and safety of US Route 62 through Oil City. This corridor traverses an urban, densely developed portion of the south side of Oil City. Therefore, as with any downtown area, there is a mix of various transportation modes that must be considered in developing appropriate transportation and land use enhancements.

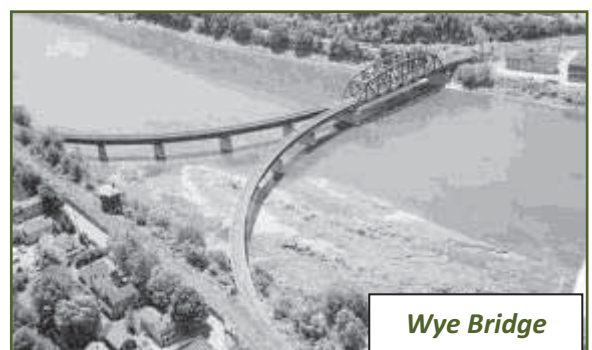
The study emphasis is to coordinate transportation improvements with land use, infrastructure and other community development decisions that will respond to the unique land use and transportation needs of the south side business and commercial districts and that will be cohesive with goals and objectives defined by the stakeholders at the outset of the project. In



Oil City's South Side



Latonia Theatre



Wye Bridge



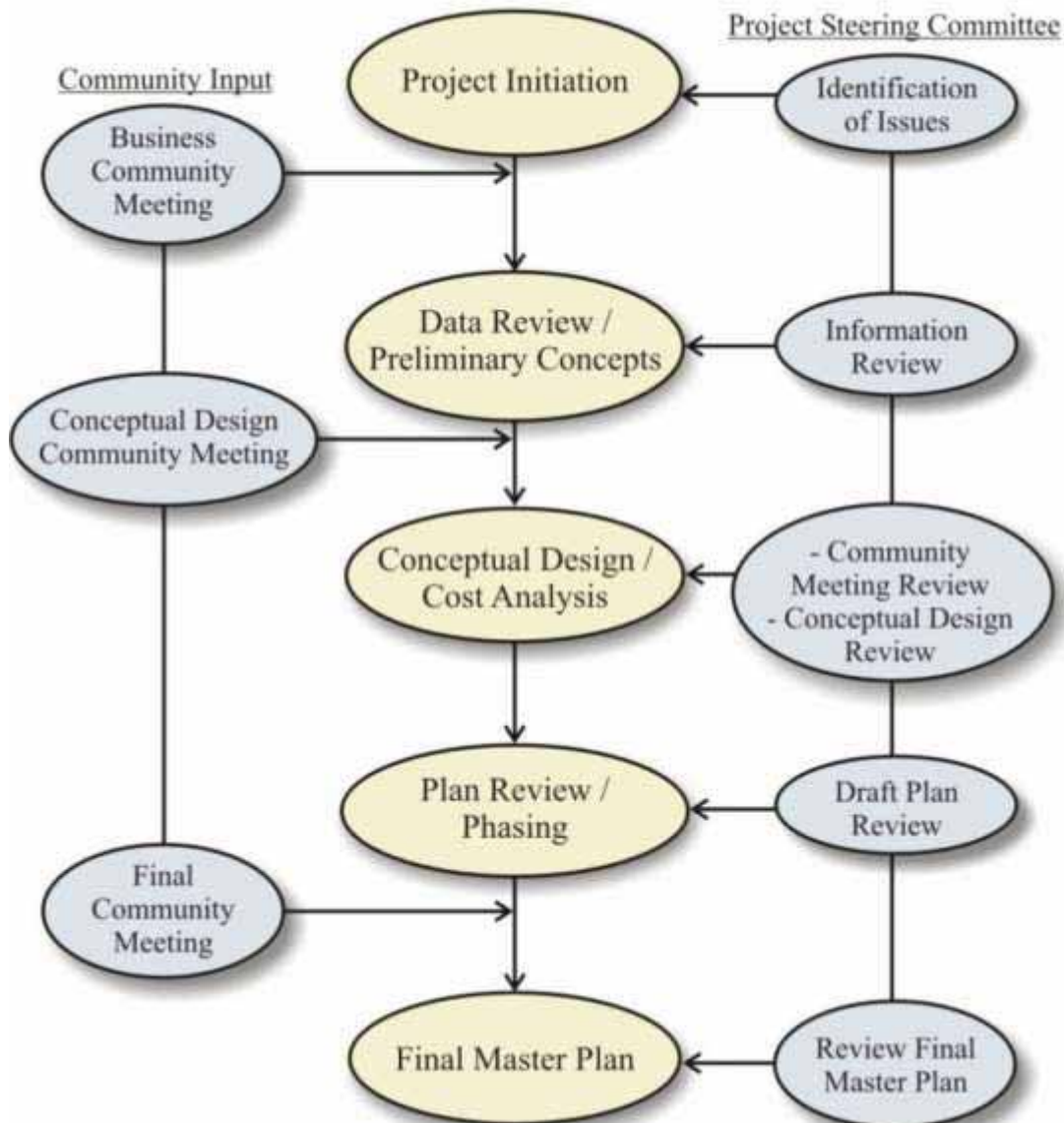
2005, Hickory Engineering (a Herbert, Rowland & Grubic, Inc. Company) prepared a "Route 8 and Route 62 Corridor Evaluation" under contract with the Oil Region Alliance and the municipalities of the City of Oil City, Cornplanter Township, City of Franklin, Sugarcreek Borough, and Rouseville Borough. This study generated (a) a database of all buildings, land parcels, and properties along Routes 8 and/or 62 in the subject governmental entities; (b) detailed building condition reports and adaptive use/reuse plans for 13 sample buildings throughout the corridor; (c) riverfront access and recreation development recommendations; and (d) policy/planning recommendations to showcase these highways which in essence function as the Main Street of the heart of Venango County, Pennsylvania. The City of Oil City has also undertaken a Comprehensive Waterways Plan to address the waterways assets running through the City and capitalizing on them to improve the quality of life for residents and to promote economic development and increased tourism. The Route 62 Smart Transportation Study will coordinate with these and other efforts so that the recommendations of this study will complement and work with these other studies to reach the overall goals of the City. The transportation recommendations and land use decisions along the US Route 62 Corridor are important to the overall transportation network and future economic growth of Oil City.

Section 1.2 Planning Process

The process for developing the US Route 62 Corridor Plan was based on a collaborative planning effort focused on gaining an understanding of the community's vision for the study area. Several key parties were involved through discussions about the project and initiatives to assist in developing an understanding of future growth in the area. The project Steering Committee included representatives from the City of Oil City, Northwest Pennsylvania Regional Planning and Development Commission (NWPRPDC), PennDOT District 1-0, Venango County Regional Planning Commission, South Side Business Association, and other key stakeholders. The planning process also included coordination with the general public to assist with the development of future plans for the project study area. Documentation of the planning process is contained in Appendix A: Community Participation Report.



Figure 1 - Planning Process





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Section 2.0

Vision, Goals & Objectives





Section 2.0 Vision, Goals & Objectives

The Vision for the study corridor, including its goals, objectives, implementation concepts and strategies, creates the foundation that guides future transportation enhancements, development and redevelopment/revitalization projects. Such strategies and future development policies are created through a collaborative step-by-step planning process used to create a Vision for the Corridor. The planning process for the Route 62 Corridor Study followed these steps for **strategic vision planning**:

- Step 1: Vision** - Define the vision and set a strategy containing a hierarchy of goals.
- Step 2: SWOT** - Analysis conducted to understand a community's "perceived" issues and assets (conducted at first public forum).
- Step 3: Goal Setting** – Prepare measurable, meaningful, and attainable goals based on community sustainability indicators (business meeting, first public meeting, committee meetings).
- Step 4: Formulate Strategies** - Formulate actions and processes to be taken to attain these goals (Map your Path).

Section 2.1 Vision

An initial Vision Statement was prepared using key words identified by the project's Steering Committee at the kick-off meeting. Committee members were asked: *What key words would you use to describe the future corridor?*

Key Words

- Development / Re-Development
- Implementation Strategy
- Vehicular Safety
- Improved Sight Distance
- Accessible
- Smart Transportation
- Pedestrian Safety
- River Access
- Aesthetically Pleasing
- Sustainable

A second draft of the Vision Statement was prepared and finalized after the first public meeting. The following is the statement refined through the planning process, and accepted as a Vision for the corridor:

Corridor Vision Statement

Enhance the Route 62 Corridor within Oil City to be a model of PennDOT's Smart Transportation initiative by coordinating transportation improvements with land use, infrastructure, economic development and community revitalization. Implementation strategies and community revitalization projects will strengthen a sense of place and establish safe, inviting, aesthetically pleasing and sustainable commercial and residential neighborhoods within the South Side Business District. Transportation improvements will address vehicular, transit, bicycle and pedestrian safety, accessibility and mobility. Improvements will enhance the Corridor and other streets to provide connections to and from residential and commercial neighborhoods and the waterfront for all modes of transportation. Transportation improvements will provide an opportunity for renewed development within and around the Corridor, continued community growth and a variety of amenities which establish this area as a unique place attracting residents, businesses and visitors.



Section 2.2 Strengths, Weaknesses, Opportunities & Threats (SWOT)

The purpose of the SWOT (*Strengths, Weaknesses, Opportunities & Threats*) activity was to provide an opportunity for residents, business owners and other key stakeholders to identify the community's assets or strengths and opportunities as well as weaknesses and threats. The planning process for the Route 62 Corridor included a two-part process. The initial step involved obtaining thoughts on the area's strengths, weaknesses, opportunities and threats from the Project Steering Committee and the South Side Business Association. The following identifies the framework for the SWOT activity as it was conducted with the two groups.

STRENGTHS (S) – List the physical, social and regulatory assets within the region or your community.

- *What makes this region or your community unique?*
- *What do I like about this region or your community?*
- *What is contributing to a positive image in the region or your community?*

INTERNAL FACTORS - Factors that can be influenced by residents, local businesses, and municipal and county government.
(Strengths & Weaknesses)

WEAKNESSES (W) – List the physical, social or regulatory obstacles or shortcomings within the region or your community.

- *What do I dislike about this region or your community?*
- *What would I like to see less of in this region or your community?*
- *What is contributing to a poor community image in the region or your community?*

OPPORTUNITIES (O) – List the physical and social entities or assets located outside the region that are underutilized or undeveloped.

- *Where are opportunities for new development and/or preservation in the region or your community?*
- *Where are opportunities for change?*
- *What would I like to see more of in this region or your community?*
- *What could change the image of this region or your community?*

EXTERNAL FACTORS - Factors that are influenced by private property owners, developers, adjacent state and county regulatory mandates, market conditions and other factors.
(Opportunities & Threats)

THREATS (T) – List the physical and social entities located outside the region that detract from the community or if left unchecked could diminish quality of life for residents and businesses in the community.

- *What prevents this region or your community from flourishing?*
- *What are obstacles to community development and/or preservation?*
- *What detracts from a positive image in the region or your community?*

The final step in the SWOT Analysis activity involved presenting the general public with a summary list of the key issues associated with the study area in an effort to obtain a prioritized list of issues of concern.



The attendees at the April Public Meeting commented on the critical issues within or near the study corridor and prioritized those issues. Table 1 lists the issues of concern in priority order as voted on by attendees of the Business Association, Steering Committee and Public Meetings.

Table 1: Study Area Issues
(1 = greatest issue of concern / 10 = lowest issue of concern)

<i>Issue of Concern</i>	<i>Business Association</i>	<i>Steering Committee</i>	<i>Public</i>
Antiquated Traffic Signals at Intersections - High Rate of Accidents -Right Turns (Weakness)	2	2	2
Sight Distance at Major Intersections (Weakness)	5	6	1
Blighted Properties - Out of Town Owners (Threat)	4	3	5
Pedestrian Enhancements - Sidewalk, Plantings, Trashcans, Benches (Opportunity)	1	9	3
Traffic Speed (Weakness)	6	1	8
Safety and Pedestrian Crossing Signs - Enhanced Signage (Opportunity)	3	4	10
Traffic Calming - Roundabouts (Opportunity)	8	5	7
Available Funding and Current Local Economy (Threat)	9	7	4
Pedestrian Trails, Paths and Sidewalks - Railroad / Pedestrian Bridge - (Opportunity)	7	8	6
Bike Lanes along Roadways - Bike Facilities (Opportunity)	10	10	9

The results of the SWOT analysis, in coordination with the preliminary discussions with the Steering Committee, were used to help establish the potential improvements throughout the project study area.

Section 2.3 Goal Setting

Project goals were developed based upon issues and concerns expressed by the Steering Committee, Business Association, public meeting attendees and by local officials and staff. The goals and objectives outlined provide the basis for future transportation improvements, development/redevelopment and revitalization programs, policies, regulatory changes, and implementation projects.

The planning process has revealed six focus topics to which goals and objectives have been created:

- ① Safety
- ② Aesthetically pleasing improvements
- ③ Promotion of development/re-development opportunities
- ④ Considerations for alternate modes of transportation
- ⑤ Project prioritization/funding opportunities
- ⑥ Riverfront access



① Safety

Goal: *Create a safer environment along Route 62 and within south side's downtown area for motorists, pedestrians, and bicyclists.*

② Aesthetically Pleasing Improvements

Goal: *Provide improvement solutions which incorporate Smart Transportation components and enhance the overall aesthetics to promote the character of the City.*

③ Promotion of Development/Re-Development Opportunities

Goal: *Gain recommendations for zoning and ordinance changes to promote development/re-development.*

④ Considerations for Alternate Modes of Transportation

Goal: *Create strategies for the south side area that enable pedestrians, bicyclists and public transit vehicles and riders safe connections to shopping, work and places of entertainment.*

⑤ Project Prioritization/Funding Opportunities

Goal: *Develop a deliverable that identifies specific projects with associated costs to allow for the future addition of projects onto the Transportation Improvement Plan (TIP).*

⑥ Riverfront Access

Goal: *Create strategies for developing a more accessible and inviting riverfront.*

Section 2.4 Formulating Strategies

Formulating strategies requires the planning process to formulate actions and strategies to be taken to attain the goals and objectives outlined in the previous section. In order to understand all necessary actions, consistency with State, County and City initiatives must be clearly identified and incorporated into action planning. The Route 62 Transportation Corridor Plan incorporates the guiding principles recognized by the Commonwealth.

The following guiding principles outline the characteristics and identify broad guidelines for transportation and community revitalization. The Smart Transportation Initiative is a leading statewide initiative that stresses the importance of creating solutions that are appropriate and specific to your community.

Section 2.4.1 Smart Transportation

Smart Transportation asks us to understand the financial, environmental, technological, and social contexts to which the State and others approach a community's transportation challenges. Engineers are asked to apply the most innovative and cost-effective tools, ideas and design solutions to solve transportation challenges, while also helping to build or rebuild downtowns. The guiding principles that govern Smart Transportation include:

❖ **Solutions tailored to the context of the community.**

Oil City has a unique mix of commercial and residential uses within and adjacent to the downtown core. An example of a solution unique to the community includes promoting the use



of alternative modes of transportation, such as walking and bicycling, to take advantage of the unique land use mix that exists around the downtown core.

❖ ***Approach and solution tailored to meet specific project needs.***

The analysis of the issues, concerns and needs integrate smart transportation solutions with downtown revitalization strategies that help create an increased ***sense of place***.

❖ ***Projects planned in collaboration with the community.***

The planning process is a collaborative process that includes community businesses, local government staff, regional coordinating agencies, appointed steering committee and the general public, integrating the technical aspects of the project with public input.

Supporting agencies:

City of Oil City

NWPRPDC

Venango County Planning Commission

PennDOT District 1-0

South Side Business Association

Oil Region Alliance

Oil Valley Chapter of the PA

Council of the Blind

Council on Greenways & Trails

Venango Bus

Area Residents

South Side Neighborhood

Association

❖ ***Solutions address needs for alternative modes of transportation.***

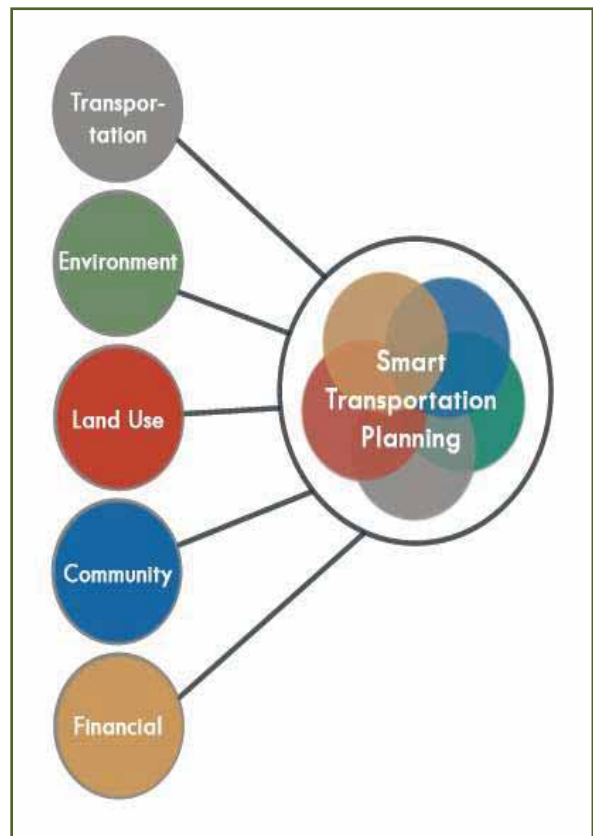
This community has great potential in that solutions for alternate modes of transportation are viable and are considered part of the strategy for short-term implementation solutions.

❖ ***Solutions formulated using ‘sound professional judgment.’***

Sound planning and engineering design solutions ranged from community revitalization projects, to linkages to transit, to safe pedestrian walk and crossways and to context sensitive land use and transportation solutions that achieve the desired vision for the community.

❖ ***Scale of the solution is designed based upon the problem.***

Oil City has historic and cultural value to the region. The scale of recommended project work is appropriately sized with respect to this urban environment. Design solutions are innovative and meet the needs of all modes of travel depending upon corridor location.





These guiding principles, through a collaborative planning process with the various key stakeholders, were used to formulate strategies to address the transportation and land use issues within and surrounding the study area.



Section 3.0

Existing Conditions





Section 3.0 Existing Conditions

Analysis of existing conditions within the study area provides an understanding of the current social, economic and physical environment. This section presents a summary of the existing conditions along the Route 62 Corridor and surrounding study area.

Section 3.1 Study Area Conditions

The initial study area was defined as the Route 62 Corridor leading into the south side of Oil City from Pumphouse Road to Petroleum Street. While this area defined the Route 62 Corridor along the south side, the study area was expanded through discussions with the Project Steering Committee to include a larger portion of the downtown area within the south side of Oil City. A Smart Transportation Study is focused on studying a network of streets, pedestrian facilities and transit services within a defined area with the goal of balancing the transportation, community and land use improvements which benefit all users. Based upon the goal of a Smart Transportation Study, the project study area was redefined to encompass the transportation network of the area bounded by US Route 62 (Front Street), Petroleum Bridge and Second Street. Figure 2 provides a graphical summary of the final study area.

Section 3.1.1 Transportation Facilities

A section of US Route 62 (Front Street) in Oil City is a four-lane roadway that prohibits parking anywhere along the Corridor from Pumphouse Road to the First Street/Wilson Avenue intersection. At the intersection of Wilson Avenue, Front Street becomes a part of a one-way-pair roadway system with First Street. From this point, Front Street consists of one or two northbound travel lanes to the intersection with Petroleum Street, while First Street consists of two southbound travel lanes between Petroleum Street and Wilson Avenue. The posted speed limit within the study area is 40 mph along the four-lane roadway section and 25 mph within the downtown core area. The study area consists of a total of five (5) signalized intersections; with two along Front Street and three along First Street. The overall condition of the existing roadways within the study area range from good to fair.

Signalized Intersections along Front Street

- State Street
- Petroleum Street

Signalized Intersections along First Street

- State Street
- Central Avenue
- Petroleum Street

There currently are no sidewalk facilities along the Front Street Corridor from Pumphouse Road to State Street. Pedestrian facilities do exist within the downtown area of the study area, including along First Street, Front Street (from Wilson to Petroleum), State Street, Central Avenue, Petroleum Street and Second Street. The condition varies throughout the study area. In addition, most of the existing ADA curb ramps do not meet current PennDOT requirements.

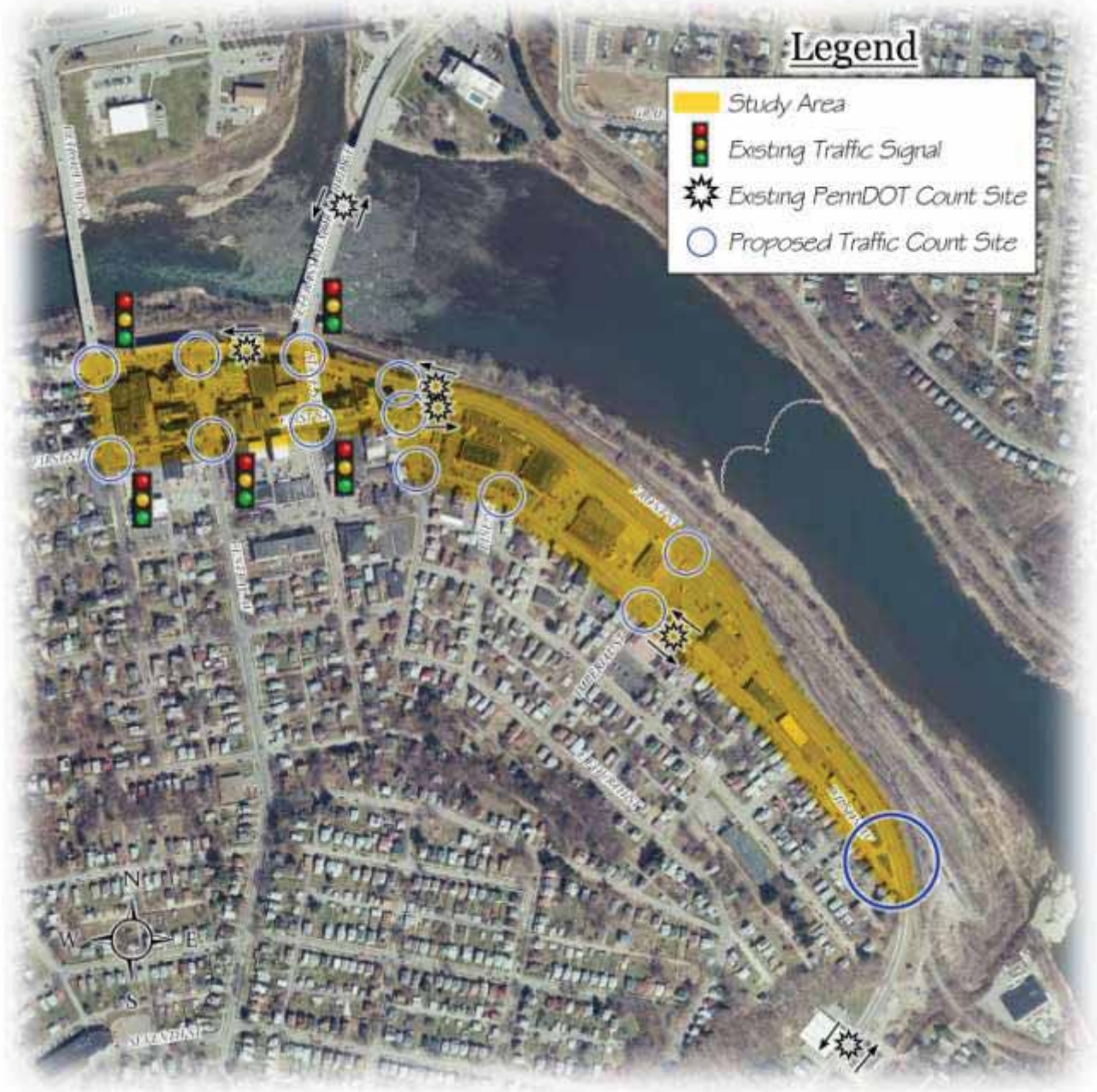
Section 3.1.2 Parking

The Front Street Corridor prohibits parking along the four-lane section leading into town from the southeast. The properties located adjacent to Front Street along this four-lane section are commercial and include off-street parking at each of the individual businesses. Front Street, from Wilson Avenue to Petroleum Street includes on-street parallel parking on one or both sides of Front Street. Petroleum Street between Front Street and First Street does not provide on-street parking, but does have a drop-off area adjacent to the YMCA. Wilson Avenue has no on-street parking between Front Street and Second Street. All of the remaining streets within the study area provide on-street parking. This



includes Petroleum Street south of First Street, Central Avenue, State Street, Wilson Avenue south of Second Street, First Street and Second Street. Most of the parking spaces are parallel with the roadway, except that portions of the parking on Central Avenue and State Street are angled. Figure 3 provides a summary of the on-street parking facilities and Figure 4 provides a summary of off-street facilities.

Figure 2: Study Area



VENANGO COUNTY, PENNSYLVANIA

Legend

- Study Area Boundary
Road Centerlines
Parcels
On Street Parking

SEPTEMBER 2010



FIGURE 3

**ROUTE 62
CORRIDOR STUDY**
OIL CITY

VENANGO COUNTY, PENNSYLVANIA

OFF STREET PARKING

Legend



Parcels

Public Lot

Private Lot

SOURCE: CITY OF OIL CITY GIS & GCCA DATASETS.



SEPTEMBER 2010



FIGURE 4



Section 3.2 Traffic Operations

Average daily traffic (ADT) data from PennDOT's Roadway Management System (RMS) database was obtained from PennDOT District 1-0. In addition, manual turning movement (MTM) traffic counts were performed at the 13 key study intersections during "typical" weekdays (Tuesday, Wednesday or Thursday) in November 2009; vehicular weekday peak hour traffic was also recorded in July 2010. These MTM counts recorded passenger vehicles, truck traffic (3+ axles), and bicycle traffic in 15-minute increments during the AM (7-9 a.m.) and PM (4-6 p.m.) peak periods. During the MTM counts noted above, pedestrian movements were also recorded at each intersection location. Each pedestrian movement was recorded in 15-minute increments by the approach that was crossed.

During project steering committee meetings, it was noted that pedestrians are utilizing the railroad Wye Bridge near Pumphouse Road to cross the Allegheny River, as this crossing is the most direct route for pedestrians to achieve access to the southside, particularly to shopping destinations, from the Siverly neighborhood. Therefore, a pedestrian traffic count was conducted in the vicinity of the SR 62/Pumphouse Road intersection on July 8, 2010. The purpose of this count was to determine the number and location of pedestrian crossings across Route 62 in this area.

Section 3.2.1 Traffic Count Data Summary

The MTM traffic counts noted above were conducted during the month of November 2009 (November 3rd thru November 18th) at 13 key study intersections. AM and PM peak hour vehicular and pedestrian traffic volumes were determined from this data and are summarized in Figure 5.

Additional MTM traffic counts were conducted at seven of the 13 key study intersections during the month of July 2010. These traffic counts data were collected for comparison with the November data; it was anticipated that pedestrian and bicycle activity would be greater during summer months versus during late fall, due to inclement weather conditions. The AM and PM peak hour vehicular and pedestrian traffic volumes for this July 2010 data are shown in Figure 6. Copies of all traffic count data is contained in Appendix B.

A comparison of the November 2009 and July 2010 traffic volume data revealed the following:

- Vehicular traffic volumes were greater in November 2009 than July 2010.
- There were no significant differences in pedestrian activity at the key study intersections. This indicates that pedestrian activity appears to be consistent throughout the year within the study corridor.

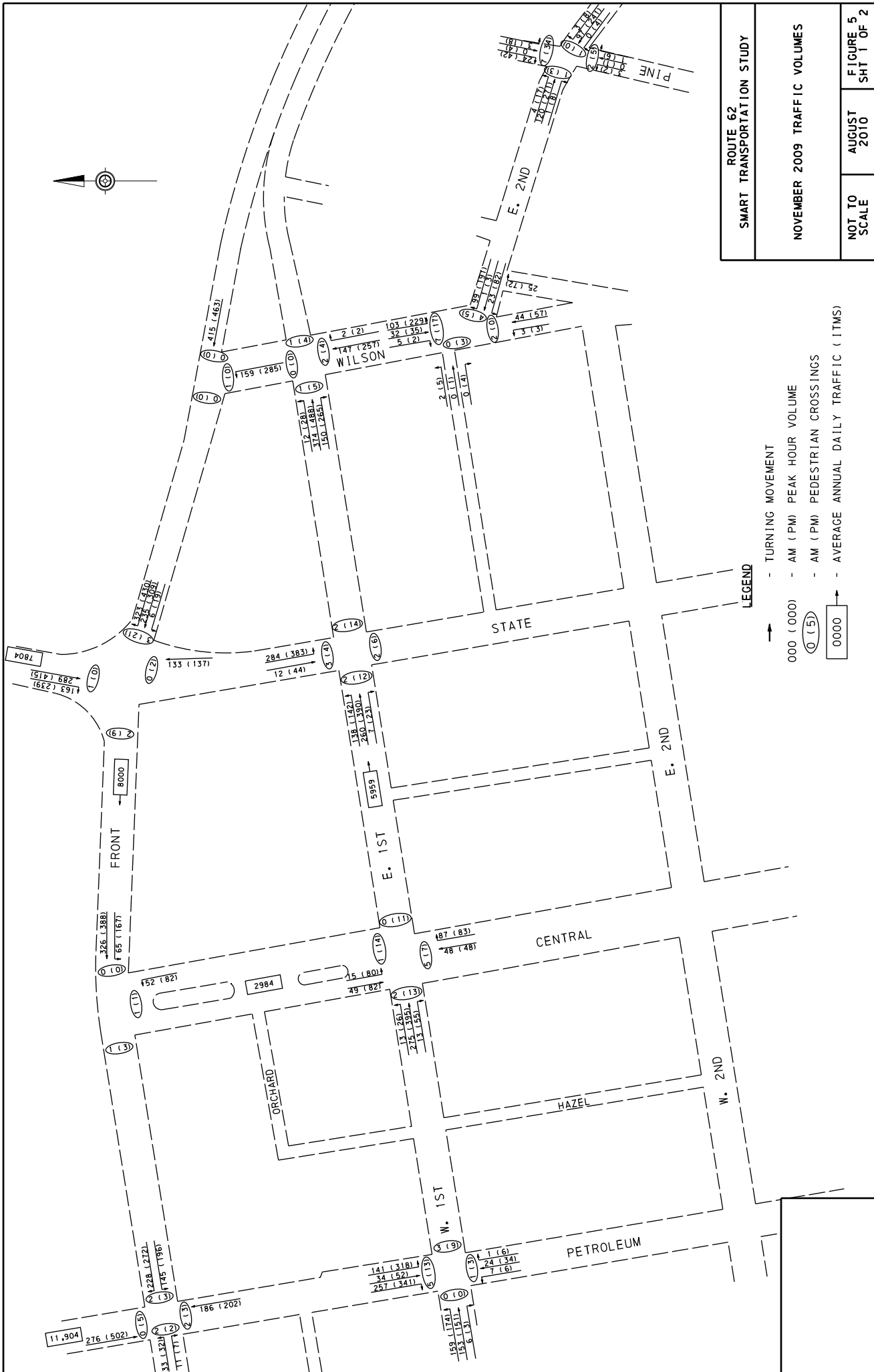
Section 3.2.2 Future Traffic Projections

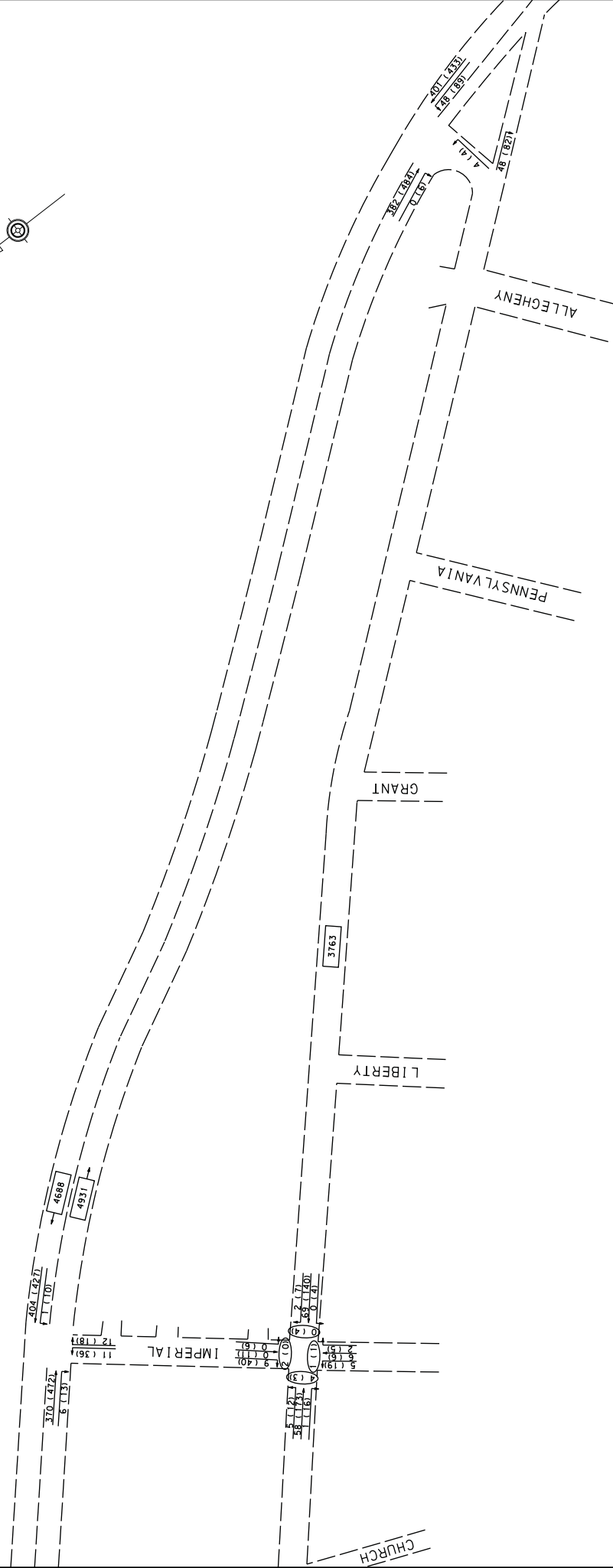
One redevelopment project for the southeast corner of Petroleum and First Streets is in preliminary planning stages. The former use of this land was a funeral home, and a bank is planning to build a branch office on that site. A transportation improvement project located to the south of the project corridor at the intersection of Route 62 and SR 257 is currently in the final design stages; a new traffic signal is planned for that location. The PennDOT Traffic Unit suggested using a background growth rate of 0.5% per year for future year traffic projections along the Corridor; this growth rate will capture increases in future traffic volumes along the corridor due to these development/redevelopment and transportation enhancement projects.

Spreadsheets showing the calculated future traffic volume projections are contained in Appendix C.



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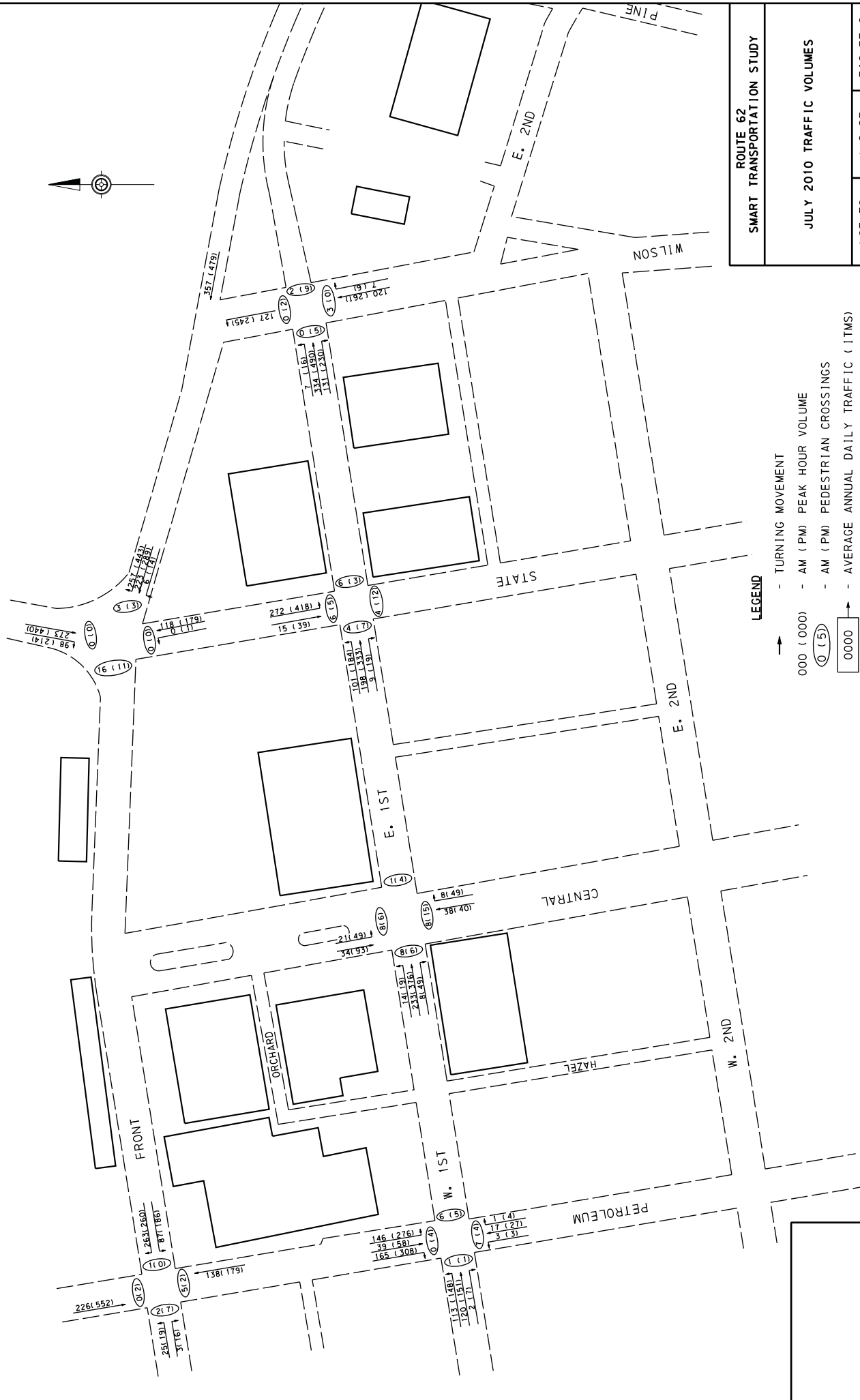
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NOT TO SCALE	AUGUST 2010	FIGURE 5 SHT 2 OF 2
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NOT TO SCALE	AUGUST 2010	FIGURE 5 SHT 2 OF 2
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ROUTE 62 SMART TRANSPORTATION STUDY		JULY 2010 TRAFFIC VOLUMES		FIGURE 6 SHT 1 OF 2	
NOT TO SCALE		AUGUST 2010			



Section 3.2.3 Safety Analysis

Available reportable and non-reportable crash data for the most recent five-year period was provided by the City of Oil City and PennDOT District 1-0. This data showed that most of the crashes occurred at intersections. The table below provides a summary of the crash data for the study area intersections.

TABLE 3.1: Five-Year Crash History

Intersection	# Crashes	Predominant Type
Front St / Petroleum St	17	Rear End
Front St / Central Ave	4	Angle
Front St / State St	4	Angle
First St / Petroleum Ave	6	Struck Object/Parked Car
First St / Central Ave	1	Pedestrian (fatality)
First St / State St	7	Rear End/Angle, Pedestrian
Front St / Wilson Ave	5	Angle
First St / Wilson Ave	7	Angle
Front St / E. Second St	7	Rear End/Angle
Front St / Pumphouse Rd	4	Rear End

The intersection of Front Street / Petroleum Street experienced the most crashes in the Corridor. The midblock location with the highest number of crashes was the two-lane section of First Street between the intersections of Central Avenue and State Street; there were seven crashes (three rear-end and three struck fixed object).

It should also be noted that even though the crash data showed there were seven crashes at the First Street / Wilson Avenue intersection over the 5-year data period, several people (during the project steering committee meetings, at a meeting with the south side business group, and at public meetings) commented that many near misses regularly occur at this intersection and sometimes involve pedestrians. These people stated that it is a daily occurrence.

Section 3.2.4 Traffic Signals

Within the study area, there are five signalized intersections. Existing traffic signal permit plans for each of these intersections was obtained from PennDOT. The existing timings programmed in each signal controller are shown on the signal permit plans.

The signal permit plans also indicate that the existing signals operate under time-based coordination; no physical signal interconnect (hardwire, fiber or wireless) currently exists.

The Oil City Fire Department maintains the existing traffic signals. JMT conducted a traffic signal inventory with the Fire Department. The purpose of this inventory was to field visit each signalized intersection and verify/record the existing signal equipment located at each intersection, for use in determining appropriate traffic signal upgrades/improvements.



In discussions with the Fire Department personnel responsible for maintaining the traffic signals, JMT discovered the following:

- Traffic signal heads have been upgraded to LED.
- The controller clocks “drift” out of time. Approximately once a month, the fire department manually resets each controller clock.
- The current signal timing and phasing programmed in each controller correspond to those shown on the signal permit plans.

Section 3.2.5 Traffic Analysis

The Synchro Version 7 traffic engineering software was used in performing the traffic analysis for this project; the HCM report output generated from the Synchro capacity analysis implements the Highway Capacity Manual (HCM) methodology and delay/LOS calculation. The existing roadway and signal network was coded in Synchro utilizing the intersection lane configurations obtained from field site visits, signal permit plans, and current AM and PM peak hour traffic volume data obtained from the MTM counts discussed in Section 3.2.

The results of the signalized and unsignalized intersection capacity/Levels of Service (LOS) analyses for existing conditions are shown in Tables 3.2 and 3.3, respectively. These results show the overall intersection operation; the detailed Synchro HCM Reports showing the delay and LOS for each approach and individual lane group movement are contained in Appendix D.

TABLE 3.2: Existing Year (2009) Signalized Intersection Capacity Analyses

INTERSECTION/ APPROACH	LEVEL OF SERVICE (LOS) / DELAY (sec/veh)	
	AM	PM
W. FRONT ST / PETROLEUM ST	B / 15.1	B / 15.9
E. FRONT ST / STATE ST	B / 14.2	B / 18.5
W. FIRST ST / PETROLEUM ST	C / 22.4	C / 34.2
FIRST ST / CENTRAL AVE	B / 11.6	B / 14.5
E. FIRST ST / STATE ST	A / 10.0-	B / 14.1

**TABLE 3.3: Existing Year (2009) Un-signalized Intersection Capacity Analyses**

INTERSECTION/ APPROACH	LEVEL OF SERVICE (LOS) / DELAY (sec/veh) ⁽¹⁾	
	AM	PM
W. FRONT ST / CENTRAL AVE	B / 11.9	C / 17.3
E. FRONT ST / WILSON AVE	B / 11.3	B / 11.6
E. FIRST ST / WILSON AVE	B / 13.5	C / 20.4
E. FRONT ST / IMPERIAL ST	B / 12.3	C / 15.8
E. FRONT ST / E. SECOND ST	C / 20.1	D / 25.4
E. SECOND ST / WILSON AVE	B / 10.0+	C / 15.0
E. SECOND ALLEY / WILSON AVE	B / 10.2	B / 11.4
E. SECOND ST / PINE ST	B / 10.2	B / 12.8
E. SECOND ST / IMPERIAL ST	A / 9.9	B / 13.1
Notes: (1) LOS and delay shown are conditions for worst case conflicting movement of un-signalized intersection.		

These results show that all study intersections are currently operating near or under capacity at LOS D or better during both the morning and evening peak hours.

For use as a baseline in comparing potential improvement alternatives, an analysis of future “no-build” conditions was performed for the projected Year 2030 traffic volumes.

TABLE 3.4: Future Year 2030 Signalized Intersection Capacity Analyses

INTERSECTION/ APPROACH	LEVEL OF SERVICE (LOS) / DELAY (sec/veh)	
	AM	PM
W. FRONT ST / PETROLEUM ST	B / 15.5	B / 17.3
E. FRONT ST / STATE ST	B / 14.6	B / 19.1
W. FIRST ST / PETROLEUM ST	C / 23.9	D / 35.4
W. FIRST ST / CENTRAL AVE	B / 11.7	B / 14.8
E. FIRST ST / STATE ST	B / 10.3	B / 14.6



TABLE 3.5: Future Year 2030 Un-signalized Intersection Capacity Analyses

INTERSECTION/ APPROACH	LEVEL OF SERVICE (LOS) / DELAY (sec/veh) ⁽¹⁾	
	AM	PM
W. FRONT ST / CENTRAL AVE	B / 12.5	C / 19.9
E. FRONT ST / WILSON AVE	B / 11.7	B / 12.2
E. FIRST ST / WILSON AVE	B / 14.4	D / 25.3
E. FRONT ST / IMPERIAL ST	B / 13.1	C / 17.8
E. FRONT ST / E. SECOND ST	C / 22.9	D / 30.4
E. SECOND ST / WILSON AVE	B / 10.3	C / 17.6
E. SECOND ALLEY / WILSON AVE	B / 11.2	B / 11.9
E. SECOND ST / PINE ST	B / 10.4	B / 13.7
E. SECOND ST / IMPERIAL ST	B / 10.1	B / 14.0
Notes: (1) LOS and delay shown are conditions for worst case conflicting movement of un-signalized intersection.		

These results show that with a projected slight growth in traffic volumes along the study corridor and the existing intersection configurations (i.e. no improvements) most study intersections are expected to operate under capacity at LOS C or better in Year 2030 during both the morning and evening peak hours; with relatively small increases in average delay per vehicles. In approximately 20 years, delay on the unsignalized side street approaches of Wilson Avenue at First Street and East Second Street at Front Street will increase by approximately five (5) seconds and operate at LOS D with vehicles on these approaches waiting an average of about 30 seconds.

Section 3.2.6 Access Management

The Transportation Research Board (TRB) has defined access management as "...the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals. The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system."

Per PennDOT's Access Management Model Ordinances for Pennsylvania Municipalities Handbook, "Access management is a means of controlling the ways in which vehicles can access major roadways, using techniques such as limiting the number of driveways and intersections with local roadways." The main goals of access management are to improve safety and reduce congestion. According to the National Highway Institute, it has been shown that with an effective access management program,



crashes can be reduced by up to 50 percent and roadway capacity can be increased by 23 to 45 percent, resulting in decreased delay and travel times.

Additionally, locations with difficult driveway access can result in driver frustration and low patronage. Motorists prefer to visit places of business that are easy to get into and out of.

With these goals in mind, and in working with the project steering committee, several driveways and intersections were investigated within the study corridor. These efforts included developing intersection sightline requirements as well as developing proposed driveway access modifications. The areas specifically mentioned as locations of concern included the Country Fair located on Wilson Avenue between Route 62 and East Second Street, and East Second Street. Proposed improvement options are discussed in more detail in Section 4 of this document.

Section 3.2.7 Transit

There is limited bus service in the Route 62 Corridor. There is one bus stop located on the eastern end of the Corridor on Imperial Street between Route 62 and East Second Street at the Giant Eagle parking lot. It has a shelter and street lighting (see photo at right). The transit stop is a part of the Oil City Route and Inter-City Route of the Venango Bus transit service offered throughout Venango County. The Oil City Route provides transportation services within the City of Oil City, while the Inter-City Route provides services and connection between Oil City, Franklin, and Cranberry Township.



Section 3.3 Existing Land Use

The Route 62 Transportation Corridor passes through Oil City's South Side downtown area. Through a detailed analysis of the land uses, intensity of land uses and locations of basic needs and services, several distinct areas of the Route 62 Corridor are depicted in Figure 5 including:

Core Downtown – The Core Downtown can be described to include the properties to the west of Wilson Avenue. The core area extends from Wilson Avenue west to Petroleum Street and north to south from the River south to East Second Street. The Core area includes retail (sporting goods, home furnishings and gifts, antiques and appliances), professional and personal services, small eateries, public spaces, and several churches. The Core Downtown area also contains small pockets of transitional residential areas on Front Street and East Second Street. Such properties have the ability in the future to convert to mixed commercial properties. Oil City is distinct in that their Core Downtown area contains historical monuments within their transportation network on Central Avenue.

Transition Mixed Commercial – Several areas, over decades of time, have changed the residential component of the Route 62 Corridor outside of the Core Downtown. Transitional Mixed Commercial areas are located on East Second Street between Wilson Avenue and Imperial Street as well as Petroleum Street between Orchard Street and West Second Street.



Today, these mixed commercial properties contribute to the downtown and region's business economy.

Suburban Commercial – The northern edge of the Route 62 Corridor has transitioned from a rural landscape into a commercial corridor for suburban retail. This occurred as this area was redeveloped in the late 1950's. Lot sizes are larger and not bound by alleyways. The roadway corridor is a comfortable width along East Second Street from Wilson Avenue to Allegheny Avenue. Lot sizes, building size and business signage are all visibly larger in the suburban commercial area of the Corridor. East Second Street is bound by Highway Commercial and Mixed Uses.

Residential – Several blocks of residential living still exist within the study area, primarily on Third Street and Second Street. Two different types of residential areas exist within the Corridor:

Transitional Residential – Transitional Residential areas are located within or adjacent to areas that have transitioned over time into mixed commercial areas. These transitional residential areas exist along Second Street and primarily contain multi-family units, attached units and duplexes along with small scale to medium scale commercial uses. Pockets of transitional residential uses can be seen outside of the downtown core. Along the west side of Petroleum Street, single-family and multi-family residential units are surrounded by commercial and mixed uses.

Traditional Residential – These traditional residential neighborhoods are designed to be walkable and are located within a short distance from the downtown, schools and churches. In the study area traditional neighborhood developments along both Second Street and Third Street can be characterized as less intensive and primarily contain single-family and multi-family residential units.

Industrial – The area bounded by the Allegheny River and the Route 62 four-lane is zoned Manufacturing and Industrial; however, the area was formerly a railroad yard and roundhouse and is now vacant land with one active rail line.

Other Uses – Park and recreational land uses are located at the intersection of East Front Street and State Street.

The following figures describe the current land use within the study area and the surrounding blocks.

ROUTE 62 CORRIDOR STUDY OIL CITY

VENANGO COUNTY, PENNSYLVANIA

CURRENT LAND USE

- Legend**
- Study Area Boundary
 - Road Centerlines
 - Parcels
 - Current Land Use**
 - Single Family Residential
 - Multi Family Residential
 - Vacant Residential
 - Mixed Use
 - Parks and Recreation
 - Public
 - Public Education
 - Church
 - Cemetery
 - Private Education
 - Commercial
 - Downtown Commercial
 - Highway Commercial
 - Industrial
 - Vacant

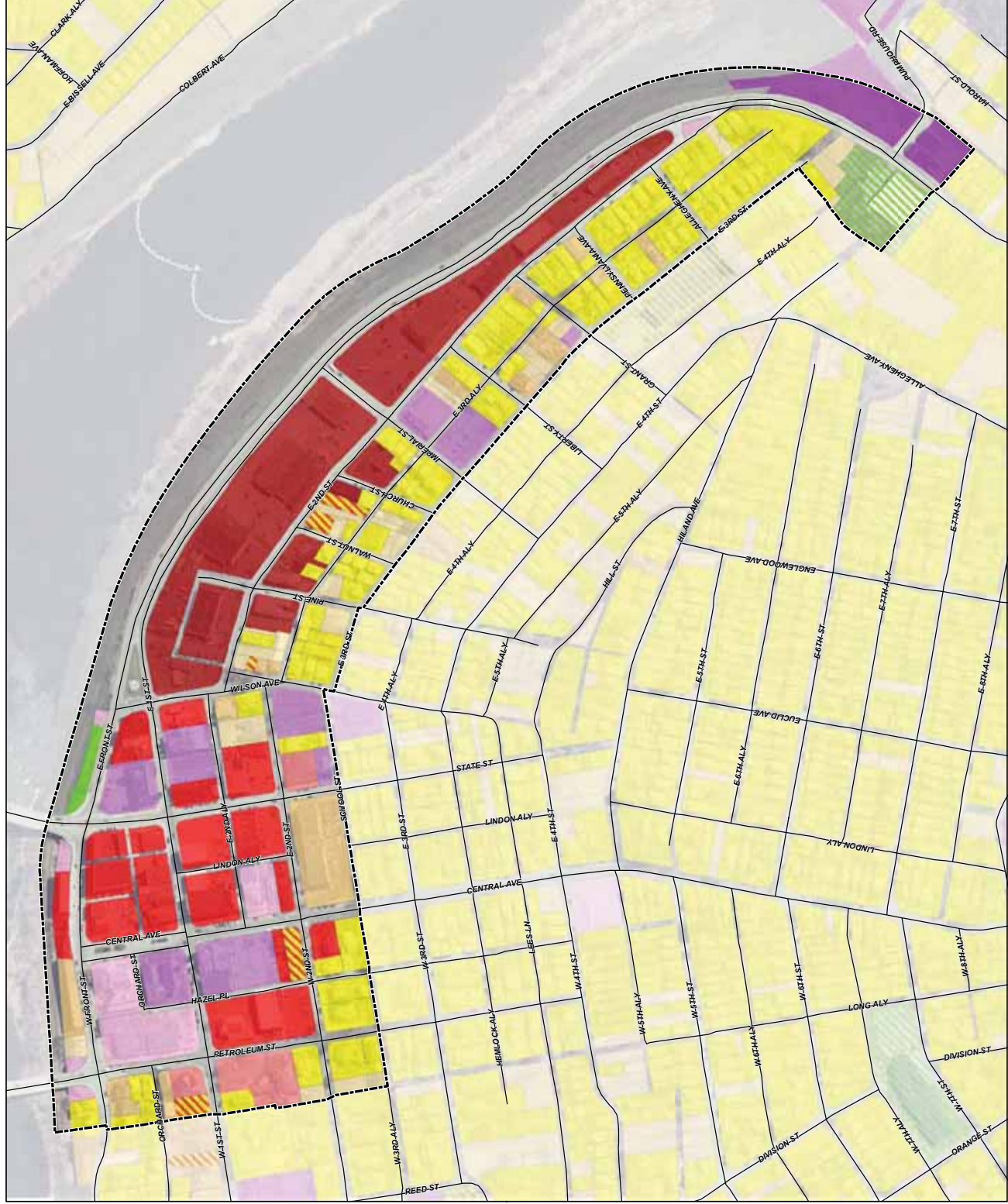
SOURCE: CITY OF OIL CITY GIS & GCCA DATASETS.
LAND USE REVISED BY JMT, OCTOBER 2010.



OCTOBER 2010

0 150 300 600
Feet

FIGURE 7



ROUTE 62 CORRIDOR STUDY OIL CITY

VENANGO COUNTY, PENNSYLVANIA

DOWNTOWN CORE CURRENT LAND USE

Legend

- Downtown Commercial
- Institutional
- Multi Family Residential
- Single Family Residential
- 2nd Floor Conditions
 - Apartment
 - Business
 - ★ Storage
 - ▲ Vacant
- 3rd Floor Conditions
 - ▲ Vacant

SOURCE: CITY OF OIL CITY GIS DATASETS
& FIELD OBSERVATIONS



SEPTEMBER 2010



FIGURE 8





Section 3.3.1 Northern Venango County Multi-Municipal Regional Plan

The Northern Venango County Multi-Municipal Regional Plan addresses land use, housing, transportation, community facilities, the protection of natural resources, and economic development throughout the Northern Venango County Region. The plan is divided into three sections by municipality. An overview of each municipality is provided with facts describing the future trends of each jurisdiction. Recommendations are provided to guide the municipalities towards areas of interest and changes that should be made.

The Northern Venango County Multi-Municipal Regional Plan is comprised of Cornplanter Township, City of Oil City, and Rouseville Borough. The Regional Plan is designed to address:

- Use existing resources first—physical, governmental, or institutional. They should always be the primary options.
- Choose a few projects from the many presented by this Plan to accomplish in the first year to give the Plan implementation traction.
- Explore, use, and promote avenues to regional cooperation.

Cornplanter Township

Cornplanter Township lies on the northern border of the three municipalities. Currently 2,687 residents live within the Township. The Township is the largest of the three municipalities with 23,872 acres or 37.3 square miles. The land within the Township is primarily publicly owned land (Oil Creek State Park and Game Lands 253). Lightly settled residential developments are focused around small villages within the Township. Housing conditions within the Township were rated as being good. The majority of housing is single-family units (90%) and mobile homes (8.7%). The number of housing units has declined from 1990 to 2000, but on average five (5) to six (6) units are being built annually. The Pennsylvania Historical and Museum Commission recognizes Pithole City as being historically significant. Large mineral extraction within the region has led to focused efforts on preserving the beauty of the natural environment. Currently, the exploration for natural gas within the Township is occurring with two drilling rig permits acquired.

City of Oil City

The City of Oil City is one of the major arterial corridors within Venango County. Base upon the 2000 census, 11,504 residents lived within Oil City, which encompasses 4.7 square miles. The US Census Board has estimated the population within Oil City has decreased annually since the 2000 census to 10,502 residents. The discovery and exploration of oil in the region as well as the geographic proximity to the Allegheny River helped to develop an early trading and shipping center. Heavy industrial uses within the region led to the widespread railroad network. Early development in Oil City was prominent around the water, thus small lots and homes were built so workers could walk to and from work. Nearly 17 percent or 497 acres of the City is listed on the National Register of Historic Places. Housing is a major concern on both the north and south side of Town. The overabundant amount of housing available within Oil City coupled with the poor housing market has led many units to become dilapidated or vacant. The Oil City Fire Department and the Oil City Police Department patrol and oversee the City. Recreational uses (parks and trails) and community facilities (library) are provided within the City. Transit and bus services are also provided throughout the City.



Rouseville Borough

Rouseville Borough has gone through much change over the past fifty years. The change has not involved new construction; instead the area has seen significant demolition of commercial buildings and generally far less retail activity. The primary difference during this time period was the closure and demolition of the Pennzoil refinery and offices that were located in the heart of Rouseville. Currently 429 residents live within the Borough of Rouseville, which encompasses 0.9 square miles. The majority of the Borough is comprised of residential land uses. A large portion of the residential housing community lies east of Route 8 and north of Route 227. Smaller pockets of residential development can be found south of Cherry Run and to the east of Route 8. Development has been limited in the Borough due to steep slopes and widespread floodplains. There is very little commercial and industrial land uses remaining in the Borough. Buildings remain vacant from commercial and industrial uses that have left the Borough. The housing market is very slow within the Borough due to poor economic conditions. The Rouseville Volunteer Fire Department and Borough park are community facilities and services that are provided to the residents.

Regional Initiatives

A regional task force has been created with the three municipalities and the County to address the basic needs for the region. Four task force teams will address policies relating to land use, housing, community facilities and public safety.

The Regional Transportation Plan

The primary funding source for transportation projects in the region is the United States Department of Transportation. The Regional Transportation Plan identifies transportation projects that will include upgrades to transit, rail, roadways and highways.

Economic Plan

The economic status throughout the Cornplanter – Oil City – Rouseville Area (COR) has remained constant or unchanged. Cornplanter Township and Rouseville Borough have seen a decrease in median household income from 1990 to 2000, whereas Oil City experienced an increase in median household income over the same time period. Opportunities for economic development exist within the region. Tourism and retail are the main providers of revenue to the current status of the Region's economic value. Tourism is one of Venango County's major industries. Tourism provides a large source of revenue for the Region as well as employment opportunities. Oil City is the most prominent location for retail within the three municipalities; however, retail trade has been declining in Oil City over the past decades. Advanced manufacturing, health care, and energy are three sectors that appear to be potential growth opportunities for the Region's economy.

Other Plans and Policies

The Bike Trail is a major priority for the Oil Region Alliance. The Bike Trail Plan suggests positive additions to the current bikeways plan and recommendations for continued trail improvement. The Oil City Bike Trail and Justus Trail are designated as being segments of the main stem of the Erie to Pittsburgh Trail which is now being linked and developed. The ARTS and Culture Plan strives to make Oil City a destination for artists. The National Transit Building currently houses 25 artist tenants in the North Side downtown. New businesses and existing businesses are relocating to the downtown where the revival of the Arts is taking place.



Transportation and land use improvements recommended as a part of the Route 62 Smart Transportation study need to be focused on the retail and tourism opportunities available within the City of Oil City. The improvements should be focused on a multi-modal approach that not only enhances the existing motor vehicle network, but also promotes pedestrian safety, transit use and commuter and recreational bicycle facilities.

Section 3.4 Open Space and Greenways

Section 3.4.1 Venango County Greenways Plan

The Venango County Greenways Plan is a part of the Northwest Pennsylvania Greenways Planning effort. The Northwest Planning and Development Commission completed the multi-county effort for six counties.

Venango County is plentiful with recreational opportunities. These natural resources are important to the County and the surrounding Region. These resources include:

- The Oil Heritage Region: The Region is historically significant for its legacy as the creation of the petroleum industry. Artifacts, scenic vistas, and museums are a few of the incredible areas to explore within the Region.
- Oil Creek State Park: The Park is approximately 6,250 acres and is located in the Oil Creek Valley. Drake Well Museum and Park is situated immediately north and east of Oil Creek State Park.
- Two High Quality Streams (Cherry Run and Little Sandy Creek) and two Exceptional Value Streams (Hemlock Creek and Dennison Run)
- Important Bird Areas
- Washington's Trail: Historic and scenic route commemorating George Washington's first military and diplomatic journey
- Allegheny River: The River stretches from its northern headwater in central Potter County downstream to Pittsburgh. The 325-mile river flows into the Monongahela to form the Ohio River in Pittsburgh.
- French Creek
- North Country National Scenic Trail: The Trail encompasses 4,600 miles from its western point in North Dakota to its eastern point in New York.

Through conservation and proper planning efforts to preserve greenways and their corridors in Venango County, future generations will be able to experience these exceptional resources.

Greenways provide a vast number of recreational opportunities for visitors. A greenway may offer trails for hiking, jogging, biking, canoeing / kayaking, and other outdoor recreational activities. Greenways also create naturally occurring buffers that separate developed and non-developed lands. These aspects present benefits to local municipalities and their residents. Benefits would include:

- Promotes environmentally sound land development
- Promotes land and water restoration
- Encourages a network of non-motorized and motorized land and water transportation corridors to connect people to our resources



- Explores opportunities to expand motorized off-highway vehicle and snowmobile trail opportunities
- Conserves natural resource infrastructure resources
- Builds capacity at the local level for implementation and encourages economic development
- Promotes healthy living
- Enhances the quality of life

The Venango County Greenways Plan defines implementation strategies that must be put in place in order to create the vision for greenways in Venango County. The County has the opportunity to complete the following tasks if the recommendations are fulfilled.

- Guide growth and development in a sustainable manner
- Improve the economy in Venango County by enhancing tourism opportunities and venues and by providing goods and services to meet the needs of our residents and tourists
- Provide alternate forms of transportation to improve air and water quality and to reduce traffic congestion
- Connect its residents and neighborhoods to one another, as well as its parks, schools, and cultural and natural resources
- Conserve natural resources, which provide life sustaining functions and create the character of place, for current and future generations of Venango County residents

Proposed facilities identified in the plan are shown on Figure 9.

The Venango County Greenway is consistent with the Smart Transportation approach to make trails an integral part of the overall transportation network.

Section 3.4.2 Oil City Comprehensive Waterways Plan

The City of Oil City has contracted with Mackin Engineering Company to develop a Comprehensive Waterways Plan for the City focused on identifying opportunities and developing strategies that would enhance the waterfront at eight (8) key locations along the Allegheny River and Oil Creek. In addition, general corridor-wide recommendations are also being included in the Plan. The evaluation of each of the eight areas provided recommendations pertaining to the following:

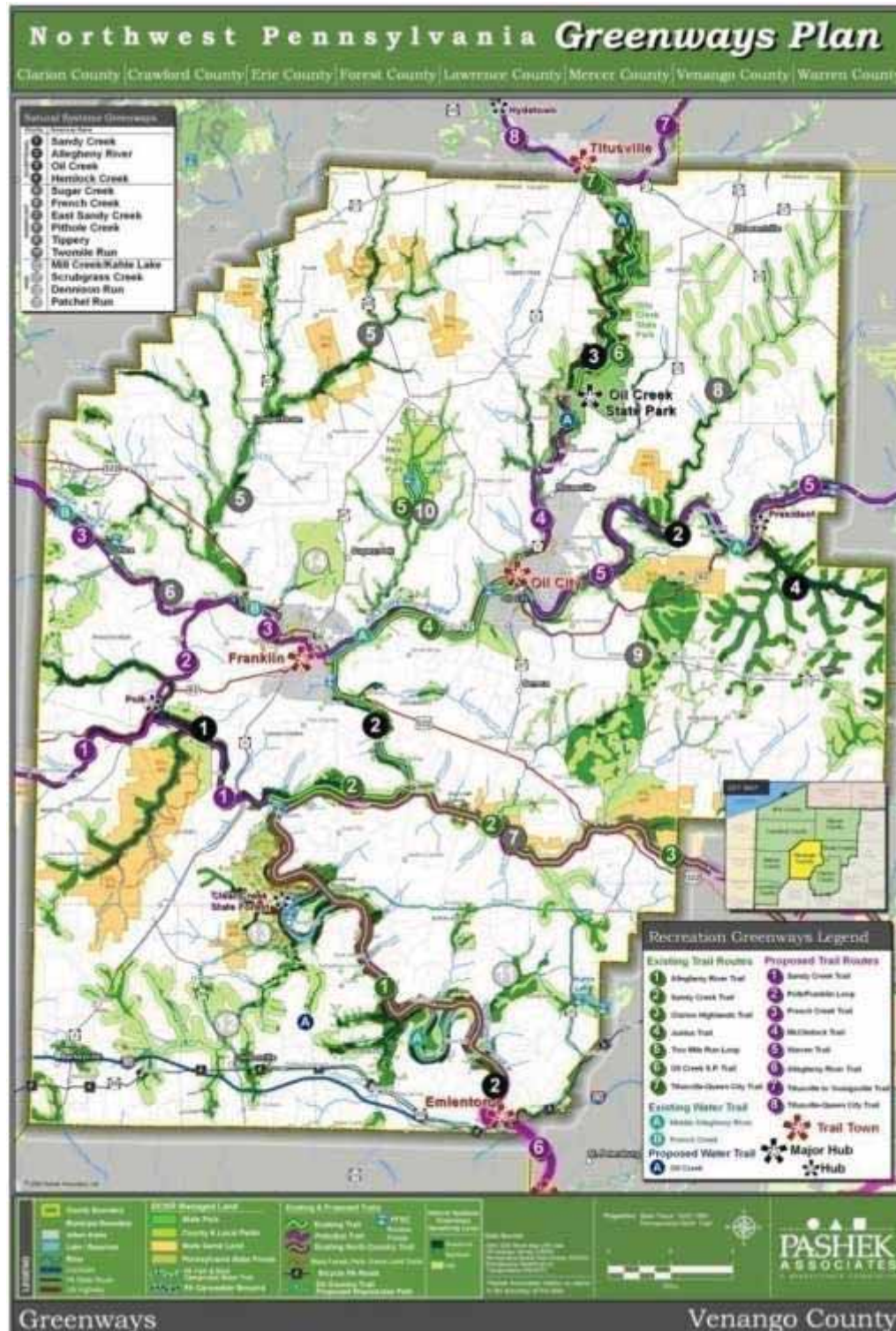
- Recreational Enhancements
- Economic Development Opportunities
- Access Management
- Educational Opportunities
- Aesthetic Enhancements

The Waterways Plan has made initial recommendations for the area of the South Side Business District, including designating a white-water loop under the Veteran's Memorial Bridge (State Street), improving River access for fishing and boating, and redeveloping and strengthening the south side business section. Recommendations have also been made with regard to the Siverly Railroad Bridge, which connects the City's Siverly neighborhood to the south side commercial and residential areas.



The Waterways Plan was not complete at the time of finalization of this Smart Transportation Study. Implementation of the recommendations developed through this Smart Transportation study should consider the final recommendations of the Waterways Plan.

Figure 9: Venango County Greenways





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Section 4.0

Analysis of Improvement Options & Solutions





Section 4.0 Analysis of Improvement Options and Solutions

The Smart Transportation principles provided a guide for the collaborative planning process, including the development of improvement options and solutions for the south side of Oil City that enhance the Route 62 Corridor and surrounding study area. The solutions identified through the planning process are focused on addressing the critical issues by improving the quality of the area within the study and developing a plan for transportation and land use improvements that promote safety and encourage development/re-development opportunities within the south side.

Section 4.1 Front Street (Route 62) Corridor

The Front Street (Route 62) Corridor currently consists of a four-lane road from Pumphouse Road to Wilson Avenue. Front Street can be accessed from First Street/Wilson Avenue, Imperial Street, Second Street and Pumphouse Road. In addition, vehicles traveling east along Front Street have access to the CVS parking area via a right-in/right-out access point. The existing traffic volumes, which are consistent with future volumes, are low enough to allow for a potential “road diet” along the Front Street Corridor. In addition to a potential reduction of travel lanes, the Front Street Corridor could also be enhanced to provide for bicycle and pedestrian facilities, as well as additional traffic calming through the use of roundabouts at the First Street/Wilson Avenue and Second Street intersections.

Smart Transportation Principles

- ❶ Solutions tailored to the context of the community.
- ❷ Approach and solution tailored to meet specific project needs.
- ❸ Projects planned in collaboration with the community.
- ❹ Solutions address needs for alternative modes of transportation.
- ❺ Solutions formulated using sound professional judgment.
- ❻ Scale of the solution is designed based upon the problem.

Road Diet

The term “road diet” is associated with the reduction of travel lanes along a roadway while still providing a facility that meets the current and future traffic demand. The proposed lane reduction would reduce the existing four-lane roadway (two lanes in each direction) to a three-lane roadway, which would include one lane per direction and a left turn lane/median area. The elimination of two thru lanes would allow sufficient space for the median/left turn area, as well as designated pedestrian/bicycle facilities. The median area would provide an opportunity for a landscaped area to provide a more welcoming entrance to the City’s south side. The goal of the pedestrian/bicycle facilities would be to provide a sidewalk facility on the south side of Front Street and a shared-use facility on the north side. These improvements should also help to reduce the travel speeds along this section of Front Street.

Implementation of the “road diet” improvements could be completed in a phased approach. The initial phase would reduce the number of travel lanes through pavement marking improvements which would provide a cost-effective means for calming traffic entering the City. The second phase would implement the full improvements which would include a curb, median, pedestrian/bicycle facilities and landscape plantings.

Coupled with the “road diet” (under either the initial phase or full improvements) would be the reconfiguration of the Wilson Avenue approach at its intersection with First Street and Front Street,



reducing it to a single-lane approach. The existing two-lane configuration adds to driver confusion and reduced sight distance for vehicles on Wilson Avenue. Thus, a single-lane approach should improve safety.



A traffic capacity analysis was performed at the following unsignalized study area intersections with the three-lane concept on Front Street, and the single-lane concept on Wilson Avenue:

- Front Street/Wilson Avenue
- First Street/Wilson Avenue
- Front Street/Imperial Street
- Front Street/East Second Street

As shown in Table 4.1 below, the results of the intersection capacity analysis with 2009 traffic volumes indicate that acceptable LOS D or better would be provided with the proposed three-lane configuration; LOS D operations would occur on the stop-controlled side street at the First Street/Wilson Avenue and Front Street/East Second Street intersections during the PM peak hour. Comparing this with the existing conditions analysis (Table 3.3) reveals that delays would increase slightly in the AM peak hour and moderately in the PM peak hour.

TABLE 4.1: Unsignalized Intersection Capacity Analyses for 3-Lane Wilson Avenue to East Second Street

INTERSECTION/ APPROACH	LEVEL OF SERVICE (LOS) / DELAY (sec/veh) ⁽¹⁾			
	2009 with 3-lane Configuration		2030 with 3-lane Configuration	
	AM	PM	AM	PM
E. FRONT ST / WILSON AVE	C / 18.2	C / 23.8	C / 22.0	D / 33.9
E. FIRST ST / WILSON AVE	B / 14.7	D / 31.6	C / 16.1	F / 50.4
E. FRONT ST / IMPERIAL ST	B / 14.6	C / 19.9	C / 16.0	C / 23.7
E. FRONT ST / E. SECOND ST	C / 20.1	D / 25.5	C / 22.9	D / 30.5
Notes:				
(1) LOS and delay shown are conditions for worst case conflicting movement of unsignalized intersection.				



In Year 2030 with the three-lane configuration, LOS C conditions would exist at all intersections during the AM peak hour. During the PM peak hour all but the intersection of First Street/Wilson Avenue would operate at LOS D or better; the Wilson Avenue approach at First Street would experience LOS F conditions with vehicles on Wilson Avenue waiting approximately 50 seconds on average before proceeding through the intersection. Therefore, additional long-term improvements were considered at the First Street/Wilson Avenue intersection and are discussed below.

Roundabouts

Improvements to the Front Street corridor could include roundabouts at the First Street/Wilson Avenue intersection and/or the Second Street intersection. The inclusion of a single-lane roundabout at either of these locations would provide a means of traffic calming as motor vehicles enter the downtown area. In addition, the roundabout at the First Street/Wilson Avenue intersection would provide a gateway to the City of Oil City's south side. Sufficient space is available to provide a roundabout at this location that incorporates the existing fountain into the center island, while minimizing impacts to surrounding properties and businesses. It appears that constructing a roundabout at the Second Street intersection would be more challenging and potentially costly than at the First Street/Wilson Avenue intersection for several reasons, including anticipated right-of-way impacts, roadway geometry, and the potential for a retaining wall adjacent to the railroad tracks to limit grading impacts and the need for track relocation. For these reasons, analysis of traffic operations of a roundabout at the Second Street intersection was not performed.

A traffic analysis using the PennDOT roundabout evaluation spreadsheet was conducted for a roundabout at the First Street/Wilson Avenue intersection. One of the evaluation measures used in this analysis is the volume-to-capacity (v/c) ratio of the approaches to the roundabout; this measure is the ratio of the demand volume on the approach to the capacity (how much volume the roadway can handle) of the approach. For the roundabout analysis, a v/c ratio of 0.85 (or 85% of the capacity) is accepted as the threshold of acceptable level of service (LOS). The results of the analysis of the First Street/Wilson Avenue roundabout for existing traffic volumes and future year 2030 traffic volume projections showed that all roundabout approaches would operate below an acceptable volume to capacity (v/c) ratio of 0.85.

A more detailed roundabout traffic analysis of the First Street/Wilson Avenue intersection was performed using the SIDRA traffic engineering software. The results of this analysis were consistent with the PennDOT roundabout spreadsheet. The SIDRA analyses showed a LOS A operation for the overall roundabout for 2009 and 2030 traffic volumes during the AM and PM peak hours. All approaches are expected to operate below an acceptable v/c ratio of 0.85; the worst approach would be First Street operating below a v/c ratio of 0.74. Based upon the level of service analysis, a roundabout would operate more efficiently during existing and future (2030) traffic conditions when compared to stop-controlled intersection. The results of the SIDRA analyses are contained in Appendix E.



Section 4.2 Streetscape Improvements

The primary goal of streetscape improvements within the study area will be to develop a consistent pedestrian facility that meets user expectancy while providing a safe and aesthetically pleasing means of transportation for pedestrians. Streetscape improvements need to be planned and designed to meet two unique areas within the project study area. These areas include the downtown core area bounded by First Street, Petroleum Street, Wilson Avenue and Front Street, as well as the residential area located outside of the downtown core along Second Street.

Within the downtown core of the south side of Oil City, the focus of the streetscape improvements will be to bring together transportation improvements with land use, and coordinate pedestrian facilities within the business and commercial districts of the study area. Improvements in this area are to include full streetscape enhancements, including the following:

- Concrete sidewalks
- Decorative brick pavers (buffer area)
- Pedestrian lighting
- Traffic Signal Improvements
- Amenities (Benches, Trash receptacles, Bicycle Racks)
- Decorative crosswalks
- ADA curb ramps
- Infrastructure Improvements (Water & Stormwater Improvements)
- Street trees
- Signage

The streetscape improvements along the Second Street corridor would have the same focus, including providing a safe and aesthetically pleasing facility for the pedestrians. However, the design would be less elaborate than the downtown core area and would be designed to establish dependable pedestrian facilities which adhere to the current ADA guidelines. Providing such improvements would present the residential area of the study area as being comfortable, inviting, and having a safe environment.

A critical component of the pedestrian facilities in any area is adherence to current ADA guidelines, including ADA curb ramps. PennDOT is focused on upgrading the ADA curb ramps throughout the state. The City will need to work closely with PennDOT to understand their future roadway maintenance and construction project schedule as it relates to state routes within the study area. It is recommended that the City coordinate closely with PennDOT with the goal that all ramps at a given intersection are improved at one time and meet the aesthetic standards that are associated with future streetscape improvements.

Smart Transportation

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- ❺ Solutions formulated using sound professional judgment.
- ❻ Scale of the solution is designed based upon the problem.



Section 4.3 Access Management

Opportunities for access management can be found within the study area along Wilson Avenue and East Second Street. The following summarizes some of the access management techniques that could be applied to this Corridor.

Country Fair Store/Wilson Avenue/East Second Street

As it exists, the segment of Wilson Avenue between First and Second Street sees a lot of activity from both vehicles and pedestrians. In particular, this area is not clearly delineated to separate vehicle traffic on the roadway, vehicle traffic entering/exiting Country Fair, and pedestrians walking in the area.

Five access management techniques that could be made in this area to better delineate vehicle and pedestrian areas include:

- Driveway delineation – eliminate the wide open driveway access on Wilson Avenue and First Street by adding channelization and islands
- Driveway consolidation – eliminate the driveway on East Second Street due to its proximity to Wilson Avenue
- Cross access with CVS – provide a cross access connection from Country Fair to CVS, which would allow County Fair patrons to access Second Street via the existing CVS driveway
- Pedestrian Sidewalks – improve pedestrian delineation by adding more sidewalk area
- Street closure – eliminate the confusing roadway split of Wilson Avenue south of Second Street

US Post Office/Thorne's Market

This area could benefit by adding cross access between the USPS parking lot and Thorne's Market parking lot. It was observed that there were shoppers parking in Thorne's lot and entering the USPS building. In addition to providing a cross access, one of the existing Thorne's Market driveway openings could be eliminated to reduce the number of access points along Second Street.

Imperial Street

Imperial Street runs between Rite Aid and Giant Eagle. The area is currently wide open with no delineation. Tractor trailers were observed turning from Front Street onto Imperial Street. There are existing driveways on Imperial Street less than 100' from Front Street. This creates a situation where sight distance is limited for turn vehicles. This area could benefit from better driveway delineation. Providing an entry throat on Imperial Street for approximately 100' south of Front Street would eliminate vehicle conflicts at the driveways with vehicles turning from Front Street. Head-in parking could be maintained if necessary for Rite-Aid and the wide open access to Giant Eagle could be reduced to one or two standard sized driveway openings.

Smart Transportation

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- ⑤ Solutions formulated using sound professional judgment.
- ⑥ Scale of the solution is designed based upon the problem.



East Second Street from Imperial Street to Front Street

Due to the narrow lot depth between East Second Street and Front Street, there is less opportunity for shared/cross access in this area. However, existing driveway openings could be narrowed to standard widths to provide better delineation and shorten pedestrian crossings of driveways.

Concept sketches illustrating the proposed access management improvements, as well as a draft model access management ordinance are contained in Appendix H.



Section 4.4 Traffic Signalization Plan

A traffic signal study was performed along the Route 62 Corridor at each of the key study area intersections between Petroleum Street and Wilson Avenue. Using the intersection traffic volumes collected from the intersection turning movement counts, Traffic Signal Warrant 2 (Four-Hour Warrant) and Traffic Signal Warrant 3 (Peak Hour Warrant) contained in the Manual on Uniform Traffic Control Devices (MUTCD) were examined. The volume counts were made during the week and did not consider weekend traffic, which could be considerably higher.

The results of these analyses showed that the existing traffic volumes at the following intersections do not meet the minimum volume criteria to warrant a traffic signal (see Appendix I for the detailed worksheets of the warrant analyses):

- First Street/Petroleum Street
- First Street/Central Avenue
- First Street/State Street

The pedestrian volumes collected during the intersection manual turning movement traffic counts was also reviewed and compared with the criteria for MUTCD Traffic Signal Warrant 4 (Pedestrian Volume). The existing pedestrian crossings across First Street (the major street) at any of these intersections did not meet the minimum 100 crossings per hour.

Intersection capacity analyses were then performed at these three (3) intersections for 2009 and 2030 traffic to determine impacts on traffic operations and anticipated delays that would be anticipated if these existing traffic signals were removed. Multi-lane approaches at stop controlled intersections can lead to driver confusion; therefore, single-lane approaches were used for all intersection approaches. These analyses showed that for all-way stop control with a single lane on all intersection approaches Petroleum Street would experience LOS F conditions with an average vehicle stop control delay of over one minute during the PM peak hour. This could result in vehicles queuing back into the Front Street/Petroleum Street intersection and across the bridge. This is already known to occur during weekend peak traffic volumes. Two lanes exist now on Petroleum Street at the intersection of First Street to allow a single left turning lane separate from the right turn/straight through lane. Two lanes also exist on the approach of West First Street onto Petroleum, providing separate left turn and right turn/straight through lanes. For these reasons, the removal of the traffic signal at First Street/Petroleum Street is not recommended and was removed from further consideration.

The capacity analyses for single-lane approaches at the First Street/Central Avenue intersection showed that with current traffic volumes and all-way stop control, all approaches would operate acceptably at LOS C or better during both the morning and evening peak hours.

Smart Transportation

- ❶ Solutions tailored to the context of the community.
- ❷ Approach and solution tailored to meet specific project needs.
- ❸ Projects planned in collaboration with the community.
- ❹ Solutions address needs for alternative modes of transportation.
- ❺ Solutions formulated using sound professional judgment.
- ❻ Scale of the solution is designed based upon the problem.



It should be noted that following a pedestrian fatality that occurred at the intersection of First Street/Central Avenue, the Oil Valley Chapter of the PA Council of the Blind requested the City of Oil City to upgrade the traffic signal to provide audible pedestrian traffic signal operation. This upgrade would include an exclusive pedestrian signal phase, meaning pedestrians would be able to cross the intersection while all vehicles would be stopped. In order to provide this exclusive pedestrian movement, the traffic signal at First Street/Central Avenue must be maintained.

The capacity analyses performed for current traffic volumes and single-lane approaches at the First Street/State Street intersection showed that the First Street approach would operate at capacity LOS E during the evening peak hour. This delay would increase in time with an increase in traffic volumes. With the traffic signal and current weekday traffic volumes, the intersection runs at LOS A or B. With increased volumes, signal timings can be adjusted to relieve the Route 62 straight-through traffic. Therefore, it is recommended the traffic signal be maintained.

The traffic signal warrant analyses also showed that based on existing traffic volumes, traffic signals are not currently warranted at the following unsignalized intersections; however, peak weekend traffic counts should be collected at these intersections and analyzed prior to any traffic control modifications:

- Front Street/Central Avenue
- Front Street/Wilson Avenue
- First Street/Wilson Avenue



Section 4.5 Wye Bridge Improvements

Pedestrian connections across the Allegheny River, connecting the south side to the north side, include the State Street and Petroleum Street bridges. These two bridges are in proximity to one another and provide a direct connection to the two downtown core areas of each of the north and south sides. There is also an existing Wye Railroad bridge which crosses the Allegheny River east of the State Street Bridge, near the eastern limits of the study area. The bridge is currently posted for "no pedestrians;" however it is commonly used by pedestrians. The bridge connects the Siverly residential neighborhood on the north side to the commercial, residential and other areas on the south side. The Wye Bridge contains an active rail line which services Continental Plastic Containers approximately three to four times per month.

Smart Transportation

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Improvements to the existing bridge would be a strategic solution to provide pedestrian and bicycle use to connect the north and south sides of the river. Improvements to the bridge could include a new trail surface with a railing/fence to separate the trail from the active rail line, lighting, and repainting of the structure. Such improvements would provide a safe and convenient access and could be tied into other improvements such as open space or trail improvements.



Section 4.6 Greenway / Trail

Open space along the southern banks of the Allegheny River provides a convenient opportunity for a hiker/biker trail within the study area. The proposed trail could stretch from the Veteran's Memorial Bridge to the Wye Railroad Bridge and connect to future trail extensions. The goal of this improvement is to create a pedestrian facility that promotes pedestrian and bicycle use, serving recreational, as well as transportation, purposes.

The proposed 10' wide facility would consist of a handicapped accessible trail surface similar to the high standard surfaces used throughout the Oil Region system of trails. By introducing this improvement along with the Wye Bridge improvement, City residents could enjoy a healthier way of living through safe walking and biking, and also through a reduction in automobile use, noise, air pollution and greenhouse gas emissions.

Smart Transportation

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Section 4.7 Public Plaza

The proposed public plaza is located adjacent to the First Street and Front Street intersection. The goal of this improvement is to create a beautiful pedestrian gathering facility within the study area in a location that is positioned close to the downtown core area of the south side, as well as access to the views and potential recreational opportunities along the Allegheny River. Improvements in this area should also consider the final recommendations contained in the City's Comprehensive Waterways Plan.

The proposed plaza space could include an open space area that includes the existing pavilion. The open space area would provide a year-round passive space. The open space could also be used for special events, including the Oil Heritage Festival and other community events.

Smart Transportation

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- ❺ Solutions formulated using sound professional judgment.
- ❻ Scale of the solution is designed based upon the problem.

Elements of the plaza space would need to include a retaining wall to increase the level area at the Front Street elevation. The level area could be constructed of concrete sidewalk, concrete paver sidewalk, a combination of concrete and concrete paver sidewalk or another type of hard walkway surface. The plaza would provide a river overlook outlined by an appropriate height railing. Potential exists for the plaza area to include a seating area, possibly integrated within a series of retaining/seating walls, to provide bleacher type seating for viewing of kayaking or other events along the river. The plaza area would need to provide pedestrian access to other potential improvements within the area. This would include a pedestrian walkway to the downtown core via the Front Street and State Street intersection, a pedestrian walkway to the commercial area via the Front Street and First Street intersection and pedestrian access to a future trail along the Allegheny River via an ADA accessible ramp from the plaza area to the lower banks of the river. Other key elements of the Public Plaza would include appropriate scaled lighting to provide the necessary security and site furnishings including benches, trash receptacles and bicycle racks.



Section 4.8 Land Use and Economic Development Opportunities

Coordinating land use, economic development and transportation is considered a facet of “smart growth” or “sustainable development.” This section explores opportunities for land use and economic development based upon transportation system enhancements increasing viable options for people to access opportunities, goods, services and other resources that improve the quality of life for City residents as well as residents of the region. The goal is **to create a balance of mixed uses** including housing, educational, employment, recreational, retail and service opportunities within the South Side Business District through:

- improved access;
- increased variety of consumer goods and services within clusters;
- increased spending for consumer goods and services from residents of the City and region;
- enhanced amenities and aesthetics to provide an inviting environment for residents, businesses, shoppers and visitors; and
- improved regulation of land use and building condition to support business development.

Section 4.8.1 Methods for Determining a Balanced Mix of Uses

The following outlines the methods for assessment and analysis to support development of revitalization strategies with respect to land use and economic development opportunities:

- Assessing Building and Business Inventory
- Business Community SWOT Analysis and Visual Preference Survey
- Analyzing the Business Mix using a Gap Analysis
- Analyzing Local Economics
- Revitalization Strategies

Section 4.8.2 Assessing Building and Business Inventory

A building and business inventory provides the foundation for describing, understanding, and restructuring the economy of the business district and downtown area. The “Route 8 and Route 62 Corridor Evaluation” performed by Hickory Engineering in 2005 generated a database of all buildings, land parcels, and properties along Route 62 in Oil City and detailed building condition reports and adaptive use/reuse plans for two buildings in the current Route 62 study area - the Latonia Theater building at 1 East First Street and the C. F. Cramer block at 2-30 West Front Street. Some basic information has been compiled as part of the current Route 62 Smart Transportation Study with respect to building condition, use/occupancy and business type for each structure located in the core of the South Side Business District. Over time, this information can be routinely updated and augmented with more detailed assessment and analysis. A summary of this information is depicted on maps and street profiles contained in Section 5. Based upon the information assembled, assessed and analyzed to date, the following key issues of concern have been identified with respect to building condition and business type.

Key issues of concern with respect to building condition and integrity include:

- Underutilization of first floor space;
- Vacant and underutilized upper floor space;
- Substandard minor and major conditions of upper floors and roof damage to several buildings; and



- Façade modifications altering original architectural character of the building detracts from the physical appearance and aesthetics of the environment.

Key issues of concern with respect to business inventory include:

- Quality of business establishments;
- Lack of business clusters with respect to specialty stores;
- Although a cluster of restaurants is in place, a more robust mix is necessary to achieve higher attraction rates;
- Although a cluster of retail operations with convenience and household items exists, a more robust mix is necessary to achieve higher attraction rates; and
- Lack of business services available.

Section 4.8.3 Business Community SWOT Analysis and Visual Preference Survey

The South Side Business Association participated in the planning process and was actively engaged in discussions about study area strengths, weaknesses, opportunities and threats as well as provided responses to a Visual Preference Survey (VPS). The results of each of these activities is summarized in Appendix A: Community Participation Report. Input received from the business community was used to guide technical analysis and strategy development contained in this section.

Section 4.8.4 Analyzing the Business Mix using a Gap Analysis

A Gap Analysis was conducted for three areas within a defined trade area. Retail spending was assessed considering the trade area as the study area plus an eight-mile radius. Within this trade area retail spending was also assessed for the study area, Oil City (an approximate two-mile radius around the study area) and Oil City with an eight-mile radius.

The Gap Analysis was used to analyze the business mix indicating the general areas where opportunity gaps as well as surplus gaps may be for retail goods and services. The following briefly describes an opportunity and surplus gap. Refer to Appendix F for a detailed GAP Analysis for Oil City and the surrounding area defined as the Trade Area for this analysis.

Opportunity and surplus gaps can be defined as follows:

- An **opportunity gap** occurs when a household must resort to spending their retail dollars on goods and services outside their neighborhood or locale due to one or more of the following conditions:
 - The specific type of retail opportunity does not exist in the neighborhood;
 - The quality of goods and services is simply better outside the region;
 - The existing retail establishments do not carry enough product to service the neighborhood; or
 - The type of retail goods or services does not meet the needs of the neighborhood residents.

This circumstance is referred to as an **opportunity gap** because, due to reasons mentioned, there is the potential for new or expansion of existing businesses to meet local demands.

A **surplus gap** occurs when local retail sales of goods and services exceed household spending for goods and services. A surplus indicates that local retail stores are making sales to non-local households. This circumstance is referred to as a surplus because it indicates that locally there are more goods and



services than the actual number of household residents can consume. If the surplus gap is exceptional or unique to a specific locality, this type of repeating expenditures could be considered a “niche” within a market area.

The opportunity gaps indicating the expenditure of local dollars outside the community (goods and services not adequately provided for in the local community) and the surplus gaps of goods and services provided in the City or Surrounding Area are further identified and quantified in Appendix G: Gap Analysis.

The results of this analysis can be used to identify business development opportunities, such as those identified on the following table, identifies areas to target business development in the context of physical space and configuration of land use patterns in a small town business district. The following information identifies potential opportunities to establish business clusters and niche businesses in vacant and underutilized space as well as in occupied space as uses change. The information presented represents the unmet demand for retail goods and services within the Trade Area. These opportunities should be viewed as areas for further exploration with current businesses and prospective business owners on a small scale. The information in the table below indicates the maximum amount of space that could supply goods and services to meet the demand for those services purchased outside of the Trade Area.

TABLE 4.2: Business Cluster and Niche Business Development Opportunities based upon Consumer Spending Outside of Trade Area

Business Type	Annual Opportunity Gap in Target Area	Business Expansion or Business Development Opportunity Demand for Maximum Square Footage within Target Area (\$150-\$250 in sales/sq. foot)
Restaurants		
Full-Service Restaurant	\$9,318,130	3,727 - 6,212
Limited-Service Eating Place	\$14,255,402	57,021 – 95,036
Special Food Services	\$3,499,081	13,996 – 23,327
Specialty Niches		
Camera and Photographic Equipment Store	\$377,033	1,508 – 2,513
Luggage and Leather Goods	\$247,418	989 – 1,649
Hobby, Toy and Game Store	\$793,444	3,173 – 5,289
Book Store and Newsstand	\$820,772	3,283 – 5,471
Gift, Stationery, Office Supply and Novelty Store	\$1,157,137	4,628 – 7,714
Sporting Goods Store	\$3,688,326	14,753 – 24,588
Music and Musical Instrument Store	\$360,635	1,442 – 2,404

The rule of thumb for determining the amount of space for retail use is minimum \$150 of sales per square foot. Based upon Gap Analysis results, stores with first-floor and second-floor spaces consisting of 1,000 -2,000 and 3,000 square feet can be physically and financially supported in the South Side Downtown District.



Section 4.8.5 Analyzing Local Characteristics

The following table provides key demographics for the Study Area and Trade Area.

TABLE 4.3: Key Demographics for the Study Area and Trade Area

Demographic	Oil City Study Area		Oil City (2-Mile Radius)		Oil City Surrounding Area (8-Mile Radius)	
Population						
2015 Projection	6,303		12,338		32,023	
2010 Estimate	6,630		12,928		33,485	
Target Age Groups						
18-20	144	3.8%	262	3.6%	614	3.3%
21-24	181	4.8%	316	4.3%	747	4.0%
25-34	436	11.5%	809	11.0%	1,979	10.5%
35-44	562	14.8%	1,082	14.7%	2,857	15.2%
45-54	519	13.7%	972	13.2%	2,601	13.8%
55-64	305	8.1%	633	8.6%	1,875	10.0%
Households						
2015 Projection	2,690		5,260		13,495	
2010 Estimate	2,811		5,467		13,988	
Target Household Size						
1-person	981	32.7%	1,813	31.4%	4,257	29.0%
2-persons	894	29.8%	1,850	32.1%	5,034	34.3%
3 or more persons	1,123	37.5%	2,107	36.5%	2,355	36.7%
Households by Target Incomes						
\$50,000 – \$74,999	453	15.1%	922	15.9%	2,437	16.5%
\$75,000 - \$99,999	99	3.3%	252	4.3%	847	5.7%
\$100,000+	98	3.3%	211	3.6%	648	4.4%
Tenure of occupied Housing Units						
Owner Occupied	1,814	60.5%	3,778	65.5%	10,533	71.7%
Renter Occupied	1,183	39.5%	1,990	34.5%	4,162	28.3%
Employed within Target Area						
Working within Target Area	1,394	46.7%	2,539	45.1%	6,518	44.4%
Working outside of Target Area	1,590	53.3%	3,091	54.9%	8,149	55.6%

Source: Claritas MarketPlace – 2010 The Nielsen Company.

Section 4.8.6 Revitalization Strategies

The following describes various revitalization strategies targeted to the South Side Business District and Route 62 Corridor.

① Transportation Investments Consistent with Land Use Planning and Development

Smart transportation solutions outlined in Section 2 that generally:

- Enhance or improve accessibility, mobility and safety for all modes of transportation (i.e. vehicular;
- Provide adequate access and space for loading and unloading of goods, materials and supplies;



- Provide sufficient design of space at intersections for truck turning movements;
- Provide transit connections and pedestrian and bicycle safety improvements with connections to open space and recreational areas; and
- Provide amenities for pedestrians as part of streetscape elements.

② Upper Floor Usage & Building Rehabilitation

A considerable number of structures within the core of the South Side Business District have vacant or underutilized (storage) upper floors. Second floor use for retail and office space is important as well as upper floor use for apartments, and should be targeted for this area. One important factor is the condition of upper floors in the South Side Business District. Many of the upper floors require substantial or major rehabilitation resulting in considerable private or public-private investment. Programs and incentives should be developed to support rehabilitation of structures.

- Office uses play an important role in supporting the expansion or addition of retail space.
- Office uses such as real estate agents, mortgage brokers, accountants, doctors' offices and lawyers, if signed appropriately, can benefit from a second or third floor location above a vibrant retail establishment.
- Build upon existing loan programs, including the Oil Region Alliance's Revolving Loan Fund for Route 8/62 for historic preservation and/or increased adaptive reuse, by developing a **Mixed-Use Rehabilitation Loan Program** with requirements for first floor commercial and upper floor office or apartment uses.
 - Ensure rehabilitation efforts incorporate design requirements for rehabilitation of existing or infill development for ground floor spaces that are appropriate for retail tenants, even if retail tenants do not occupy them. Architectural features, access and window configuration should be such to support retail space.
 - Support the development of second and third story office or residential uses.

③ Façade Improvement Program

Continue a Façade Improvement Program designed to promote the continued use and maintenance of commercial buildings in the South Side Business District by helping property owners and tenants rehabilitate and restore eligible structures. Support implementation of this program by:

- Allocating dedicated grants for a Façade Improvement Program for historic renovations.
- Enhancing and promoting the City's Façade Improvement Program.
- Establishing eligibility criteria for façade improvements (exterior improvements) such as:
 - Exit doors;
 - Painting;
 - Shutters and awnings;
 - Signs;
 - Stairs, porches, railings and exits; and
 - Walls, windows and cornices.

④ Business Retention and Expansion

Offer a program for business retention and expansion to support businesses to become or remain profitable within the South Side Business District. A program of this type will be designed to help existing businesses survive and grow. This strategy includes the following components:

- Continue to build a detailed market analysis using the results of this study as the basis for further development of current information useful in business retention such as:



- Characteristics of the business district;
- Description of the Trade Area;
- Characteristics of existing and potential customers; and
- Trends and future opportunities.
- Conduct a detailed business survey.
- Continue to identify key businesses creating business clusters and niches.

5 Niche Retail Opportunities

In the South Side Business District, niches already exist, but simply need to be organized. Strategies to grow these niches to become more visible can be achieved through store expansion, recruitment of new businesses and cooperative advertising and promotion (i.e. branding). The following describes the strategy for strengthening the existing niche markets:

- Build upon the Farmers' Market by creating a Festive Marketplace consisting of restaurants and specialty shops along with several stores offering convenience items to local residents. Build upon existing niches targeting the following opportunities.

Restaurant Niche Opportunities

The following are opportunities for consideration that build upon an existing cluster of restaurant uses:

- Expand dining opportunities by offering a mix of dining opportunities from take-out, casual to fine dining (breakfast, lunch and evening dining opportunities);
 - Full-Service Restaurants;
 - Special Food Services;
 - Limited-Service Eating Places; and
- Specialty food stores combined with dining opportunities.

Restaurants should be encouraged to use outdoor areas where possible. The sidewalk and plaza area in front of the restaurants can serve this purpose. Adding a few tables with colorful umbrellas can add greatly to the visual quality of the street. Besides enhancing the vitality of the street scene, outdoor areas increase restaurant capacity with minimal increase in fixed costs. With the addition of heating elements, these tables can be used into the colder months (Fall and Spring) of the year.

Residents of the downtown area are an important market segment for existing and future dining operations in the downtown. This opportunity can be strengthened by daytime workers and tourists. The National Restaurant Association has identified four major groups of frequent diners.

- Busy parents of children often involved in after-school activities and sports typically use drive-thru and carry-out restaurants.
- Older adults and empty nesters typically eat on-premises at inexpensive sit-down restaurants, buffets and fast food eateries.
- People who are convenience driven and dislike cooking (with no young children) typically use a variety of carry-out sources including restaurants and grocery stores.
- Young, urban professionals with no children dine at higher priced establishments.

**TABLE 4.4: Population Characteristics Supporting Restaurant Dining**

Factor	Threshold	Target Market Characteristics		
		Oil City Study Area	Oil City with 2-mile radius	Oil City with 8-mile radius
Household Income	Annual Income: \$50,000 – 74,999 Spends \$500 to \$1,396 per capita on food away from home	15.1%	15.9%	16.5%
	Annual Income: \$75,000- \$99,999 Spends \$1,396 per capita on food away from home	3.3%	4.3%	5.7%
Age	Householder age 45-55 spend more per capita on food away from home	13.7%	13.2%	13.8%
Household Size	One and two person households spend more per capita on food away from home	62.6%	63.5%	63.2%
Household Composition	Husband and wife composition spend more per capita on food away from home	46.2%	48.6%	53.1%
Occupation	Managerial and professional occupations spend the most per capita on food away from home	49.0%	19.2%	17.0%

Source: Claritas MarketPlace – 2010 The Nielsen Company.

Specialty Niche Opportunities

The following are a list of potential specialty niche opportunities that tend to cluster in smaller urban areas:

- Camera and Photographic Equipment Store;
- Luggage and Leather Goods;
- Hobby, Toy and Game Store;
- Book Store and Newsstand;
- Gift, Stationery, Office Supply and Novelty Store;
- Sporting Goods; and
- Music and Musical Instrument Store.

⑥Festive Marketplace with Connection to the Waterfront

The festive marketplace strategy is used to reverse the negative trends by attracting local residents, suburban residents and out-of-town visitors to downtown areas. A typical festive marketplace includes local involvement in the creation of a safe and trendy attraction intended to serve as a major catalyst for other redevelopment. Generally, a festive marketplace offers major restaurants, specialty retail shops, and a cluster of international foods. The more successful projects seem to benefit from waterfront locations and secure parking. The festive marketplace attracts the recreational shopper/tourist shopper but is also likely to attract the convenience shopper as more residential development on upper floors takes place. The area is likely to continue attracting area residents for dining and entertainment.

An opportunity for further exploration is expansion of the existing seasonal farmers market with connection along First Street to designated space along the waterfront for additional vendors with opportunities for shopping and dining as local residents and visitors travel on foot or bicycle along First Street from Central Avenue (location of traditional farmer's market) to the waterfront (new



location for additional vendors). This opportunity may not succeed, however, without additional parking opportunities in this area.

⑦ Adequate Parking Supply

Maintain sufficient parking on-site, on-street and in shared parking lots throughout the South Side Business District. Ensure sufficient time restrictions are placed based upon location of high demand and higher frequency of use. Develop a **Parking Management Strategy** as revitalization efforts warrant.

⑧ Strengthen Residential Neighborhoods

Strengthen residential neighborhoods through rehabilitation, renovation and property maintenance with an increase in property values. Provide for appropriate pedestrian and bicycle safety measures to allow for these modes of travel to and from neighborhoods to the South Side Business District. Provide for sufficient densities to support commercial revitalization efforts.

⑨ Land Use Regulation and Building Codes

Review and **update land use regulations and building codes** to address the following while maintaining consistency with the recently revised Multi-Municipal Regional Plan:

- Consider Form-based Zoning for the South Side Business District with emphasis on design of public and private space with emphasis on vertical mixed use where retail or commercial are on the ground floor and residential or commercial are on upper floors.
- Strengthen the property maintenance code.
- Adopt a sign code conducive to urban environment with consideration of mass, scale, location and materials.

⑩ Regional Tourism and Marketing Strategy

- Establish connections between North Side Business District and South Side Business District through coordination and promotion of events, wayfinding signage, access to the waterfront, streetscape improvements, aesthetics and other means.
- Conduct joint business association meetings for the North Side Business District and the South Side Business District in order to cross market, establish a brand for Oil City and jointly promote shopping, dining, entertainment, recreation and tourism opportunities.
- Identify target markets.

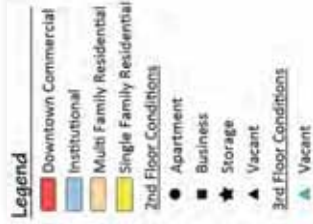
Section 4.9 South Side Business District Revitalization Concepts

This section identifies revitalization concepts for the South Side Business District with emphasis on the core of the district. The following provides an understanding of existing conditions and potential revitalization concepts for the South Side Business District.



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Route 62 Smart Transportation Study Oil City, Pennsylvania



West Front Street - North Side between Petroleum Street and Central Avenue



Multiple Family Residential

2-26 W Front St
14,758 sq. ft.

West Front Street - South Side between Petroleum Street and Central Avenue



Institutional	
2 Central Ave	7 Petroleum St
24,042 sq.ft.	22,816 sq.ft.

Route 62 Smart Transportation Study Oil City, Pennsylvania



- Legend**
- Downtown Commercial
 - Institutional
 - Multi Family Residential
 - Single Family Residential
 - 2nd Floor Conditions
 - Apartment
 - Business
 - Storage
 - Vacant
 - 3rd Floor Conditions
 - Vacant

East Front Street - North Side between Central Avenue and State Street




Petroleum
Street

State Street Furniture

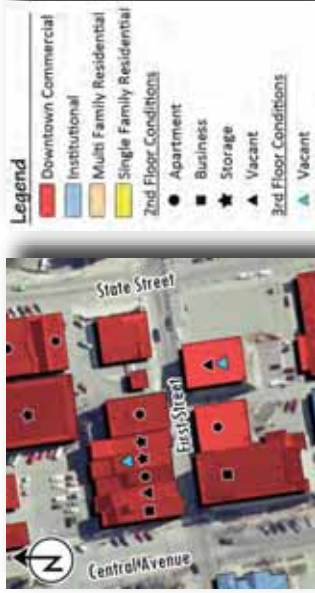
Downtown Commercial

14 E Front St
10,244 sq.ft.

Route 62 Smart Transportation Study Oil City, Pennsylvania



East Front Street - South Side between Petroleum Street and Central Avenue



Institutional		
2 State St	24,363 sq.ft.	
13 E Front St	21,526 sq.ft.	
9E Front St	5,134 sq.ft.	
1 Central Ave	2,346 sq.ft.	

Route 62 Smart Transportation Study

Oil City, Pennsylvania



West First Street - North Side between Petroleum Street and Central Avenue



Oil City, PA

7 Petroleum St
22,816 sq.ft.

16 Central Ave
10,352sq.ft.

Institutional


YMCA

Petroleum Street

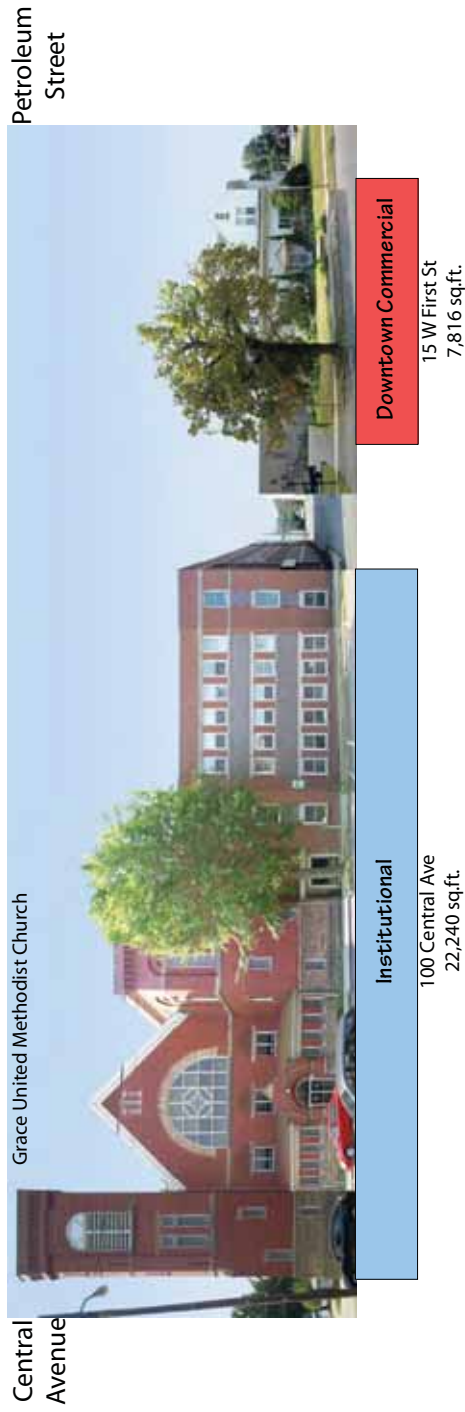
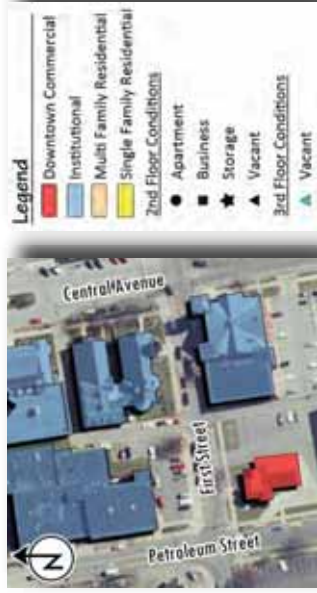
Christ Episcopal Church

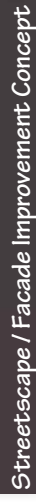
Central Avenue

Route 62 Smart Transportation Study Oil City, Pennsylvania



West First Street - South Side between Petroleum Street and Central Avenue





Downtown Commercial

between Central Avenue and State Street

Route 62 Smart Transportation Study Oil City, Pennsylvania




Route 62 Smart Transportation Study Oil City, Pennsylvania



East First Street - North Side between State Street and Wilson Avenue



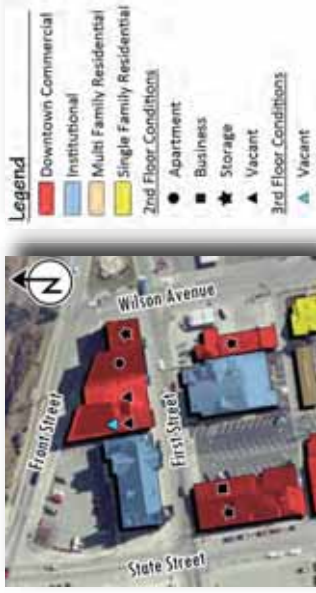
Downtown Commercial			
112 E First St	114 E First St	116 E First St	118 E First St
11,193 sq.ft.	1,138 sq.ft.	3,890 sq.ft.	8,352 sq.ft.
			122 E First St
			5,394 sq.ft.

Institutional	
21 State St	7,531 sq.ft.

Route 62 Smart Transportation Study Oil City, Pennsylvania



East First Street - South Side between State Street and Wilson Avenue



Wilson Avenue	South Side Auto	Calvary UMC	Edward Jones Investments	Nationwide Insurance	State Street
Downtown Commercial 119 E First St 2,060 sq.ft.	Institutional 115 E First St 7,847 sq.ft.	Downtown Commercial 105 E First St 3,168 sq.ft.	Downtown Commercial 101 State St 5,476 sq.ft.		

Route 62 Smart Transportation Study Oil City, Pennsylvania



- Legend**
- Downtown Commercial
 - Institutional
 - Multi Family Residential
 - Single Family Residential
 - 2nd Floor Conditions
 - Apartment
 - Business
 - ★ Storage
 - ▲ Vacant
 - 3rd Floor Conditions
 - ▲ Vacant

Central Avenue - West Side between Front Street and First Street

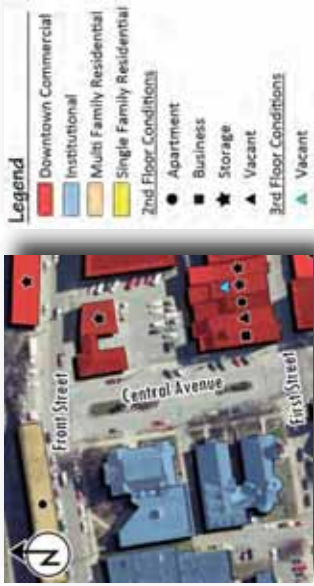


Institutional

16 Central Ave
10,352 sq.ft.

2 Central Ave
24,042 sq.ft.

Route 62 Smart Transportation Study Oil City, Pennsylvania

Central Ave - East Side between Front Street and First Street



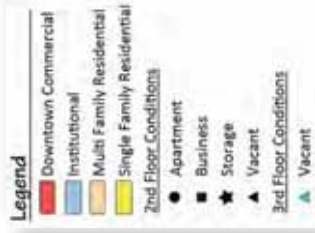
Downtown Commercial
1 Central Ave
2,346 sq.ft.

Downtown Commercial
17 Central Ave
2,326 sq.ft.

19 Central Ave
4,893 sq.ft.

Imagine This
Rural Mental Health Associates
Advanced Chiropractic
First Street

Route 62 Smart Transportation Study Oil City, Pennsylvania



State Street - East Side between Front Street and First Street

First
Street



St. Stephen
Church

Front
Street

Institutional

21 State St
7,531 sq.ft.

Route 62 Smart Transportation Study Oil City, Pennsylvania



- Legend**
- Downtown Commercial
 - Institutional
 - Multi Family Residential
 - Single Family Residential
 - 2nd Floor Conditions
 - Apartment
 - Business
 - Storage
 - Vacant
 - 3rd Floor Conditions
 - Vacant



State Street - West Side between Front Street and First Street

Front Street

Citizens Bank

Williams Travel

Williams Insurance & Travel

Williams Decorating

First Street



Downtown Commercial		
8 State St	6 State St	2 State St
3,534 sq.ft.	1,760 sq.ft.	13,020 sq.ft.

Downtown Commercial	
24 State St	
3,687 sq.ft.	



Section 5.0 Action Plan





Section 5.0 Action Plan

Several improvements have been identified to address the overall project purpose of providing the City of Oil City with an approach to the development of transportation and land use improvements within the city's south side area based upon PennDOT's Smart Transportation initiative. These improvements focus on solutions that meet the goals defined by the City and project steering committee.

Section 5.1 Project Prioritization and Implementation

The various projects that contribute to fulfilling the vision for Smart Transportation solutions along the Route 62 Corridor and surrounding south side area have been analyzed in terms of cost, impact to the community, financing, necessary partnerships, and improvement to the local economy. Through this analysis the following project implementation and prioritization strategy has been developed.

- **High Level Priorities**

- *Central Avenue Streetscape Improvements*

- ❖ Central Avenue improvements would provide necessary infrastructure improvements and an aesthetically pleasing upgrade to the pedestrian and roadway facilities between the limits of Front Street and Second Street. The improvements will accomplish these goals without impact to the existing cannon and monuments within the central island area.

- *Central Avenue and First Street Signal Improvements*

- ❖ Accessible (or Audible) Pedestrian Signal (APS) improvements at the intersection of Central Avenue and First Street will provide a safer crossing condition for the visually impaired pedestrian, as well as all pedestrians. The goal of an APS is to provide an audible notification of when it is safe to cross at an intersection. In addition, most modern devices are equipped with Braille to provide additional directions for operating the pedestrian push button.

- *Second Street Streetscape Improvements*

- ❖ Streetscape improvements along the Second Street Corridor, from Wilson Avenue to Front Street would provide functional and aesthetic improvements to the existing pedestrian facilities along this commercial/residential corridor. The improvements should be completed in coordination with access management improvements along the commercial side of the corridor, as well as infrastructure upgrades to the existing public water facilities.

- *Front Street (Route 62) Corridor*

- ❖ A "road diet" project along the Route 62 Corridor will establish a transportation facility that is consistent with existing and projected traffic volumes while promoting alternative modes of transportation through the inclusion of pedestrian facilities. This can be done in a phased approach, with the first phase establishing the new traffic patterns with turning lanes through the use of pavement markings only.



- *First Street Roundabout*
 - ❖ A single-lane roundabout at the intersection of First Street / Wilson Avenue and Front Street will provide a gateway into the business district of the south side of Oil City while calming traffic and improving the overall safety of motor vehicles and pedestrians.
- *Land Use Initiatives*
 - ❖ Incorporation of the various revitalization strategies identified in the previous section with a focus of balancing the transportation and land use initiatives to enhance the downtown core of the south side business district.

- **Middle Level Priorities**

- *Downtown Core Streetscape*
 - ❖ Streetscape improvements within the downtown core area will provide an impact related to the Smart Transportation goals and objectives that were used as guidance through the development of the corridor study. The streetscape improvement would be focused on safety and aesthetic improvements to the pedestrian facilities. These improvements could be completed at once or packaged as smaller, more affordable projects.
- *Railroad Wye Bridge*
 - ❖ Currently, the railroad bridge is posted for no pedestrians, however, the bridge is commonly used as an access means between the north side and south side of Oil City. Bridge safety improvements, as well as upgraded pedestrian and bicycle facilities would provide a safe and convenient access between the residential area on the north side and the commercial area on the south side. Implementation of these improvements will require coordination and buy-in from leaseholder Western New York and Pennsylvania Railroad.
- *Rail Trail*
 - ❖ Open space along the southern banks of the Allegheny River provides a convenient opportunity for a hiker/biker trail within the study area. The proposed trail could stretch from the Veteran's Memorial Bridge to the Wye Railroad Bridge and connect to future trail extensions. The goal of this improvement is to create a pedestrian facility that promotes pedestrian and bicycle use for recreational purposes, as well as transportation purposes. Implementation of these improvements will require coordination and buy-in from leaseholder Western New York and Pennsylvania Railroad.
- *Public Plaza*
 - ❖ The proposed public plaza is located adjacent to the State Street and Front Street intersection. The goal of this improvement is to create a beautiful pedestrian gathering facility within the study area in a location that is close to the downtown core area of the south side, as well as access to the views and potential recreation opportunities along the Allegheny River.



While the above solutions are categorized in “High Level” and “Mid-Level” priorities, the final implementation of these improvements will be finalized based upon available funding and partnership opportunities. It is recommended that the City of Oil City utilize the priorities to allow for a focused effort to obtain funding, but be willing to modify their course for the better good of the City.

The following project sheets provide the base information pertaining to each of the proposed improvements, including the necessary information for the County’s Transportation Improvement Program (TIP).



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Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Description:

Central Avenue improvements would provide necessary infrastructure improvements and aesthetically pleasing upgrades to the pedestrian and roadway facilities. The improvements will accomplish these goals without impact to the existing cannon and monuments within the central island area. The planned improvement from Front Street to Second Street would include the following:

- Concrete/concrete paver sidewalks
- Pedestrian lighting
- Benches, trash receptacles, bicycle racks
- Decorative median treatments
- Decorative crosswalks
- ADA curb ramps
- Street trees
- Water line replacement
- Roadway milling and overlay



Project Characteristics

Priority Level	High
Project Partners	PennDOT, NWPRPDC, SS Business Association, SS Neighborhood Association, Oil Valley Chapter of the PA Council of the Blind, Property / Business Owners, Oil Region Alliance
Cost	\$1.4 to \$1.5 Million
Funding Opportunities	PCTI Grant, CDBG EDA—Community Infrastructure ARRA Grant DCED—Community Revitalization Program DCED—Community & Municipal Facilities Assistance Program

Central Avenue Streetscape



Existing Conditions

Venango					
MPMS#		Municipality:			
Title: Central Avenue Streetscape		Route: Central Avenue		Section:	A/Q Status:
Improvement Type: Streetscape Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Front Street to Second Street					
Narrative: Pedestrian enhancement improvements focused on upgrading the sidewalk and ADA facilities along Central Avenue. Improvements also include upgrades to existing water line and roadway resurfacing.					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 175			
Con			\$ 1,300		
Total FY 2010-2014 Cost		\$ 1,475			
Pe = Engineering Con = Construction					

Pe = Engineering
Con = Construction

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Location

Project Description:

Accessible (or Audible) Pedestrian Signal (APS) improvements at the intersection of Central Avenue and First Street will provide a safer crossing condition for the visually impaired pedestrian. The goal of an APS is to provide an audible notification of when it is safe to cross at an intersection. In addition, most modern devices are equipped with Braille to provide additional directions for operating the pedestrian push button. To implement the APS improvements, several upgrades would be required to the existing signal, including:

- New signal control cabinet
- Additional conduit and wiring
- Pushbuttons with integrated APS
- ADA curb ramps



Project Characteristics

Priority Level	High
Project Partners	PennDOT, NWPRPDC, SS Business Association, SS Neighborhood Association, Oil Valley Chapter of the PA Council of the Blind, Property / Business Owners
Cost	\$150,000 to \$175,000
Funding Opportunities	PCTI Grant, CDBG USDA—Community Facilities Loans and Grants PennDOT—Hometown Street, Safe Routes to School

Accessible Pedestrian Signal



Venango					
MPMS#		Municipality:			
Title: Accessible Pedestrian Signal		Route: Central Avenue		Section:	A/Q Status:
Improvement Type: Traffic Signal Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: First Street/Central Avenue Intersection					
Narrative: Traffic Signal Improvements to upgrade existing signal to provide full Accessible Pedestrian Signal, including audible notification and Braille. Work would also include upgraded ADA curb ramps					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 20			
Con			\$ 140		
Total FY 2010-2014 Cost		\$ 160			
Pe = Engineering Con = Construction					

Pe = Engineering
Con = Construction

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Description:

Streetscape improvements along the Second Street Corridor, from Wilson Avenue to Front Street would provide functional and aesthetic improvements to the existing pedestrian facilities along the commercial/residential corridor. The improvements would be completed in coordination with access management improvements along the commercial side of the corridor. Specific streetscape features would include:

- Concrete sidewalks
- Pedestrian lighting
- ADA curb ramps
- Street trees
- Water line replacement
- Roadway milling and overlay
- Access management improvements



Project Characteristics

Priority Level	High
Project Partners	PennDOT, NWPRPDC, SS Business Association, SS Neighborhood Association, Oil Valley Chapter of the PA Council of the Blind, Property / Business Owners, Oil Region Alliance
Cost	\$2.5 to \$2.6 Million
Funding Opportunities	PCTI, CDBG DCED—Community & Municipal Facilities Assistance Program DCED—Elm Street EDA—Community Infrastructure ARRA Grant

Second Street Streetscape



Existing Conditions



Venango					
MPMS#		Municipality:			
Title: Second Street Streetscape		Route: Second Street		Section:	A/Q Status:
Improvement Type: Streetscape Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Wilson Avenue to Front Street (Route 62)					
Narrative: Pedestrian enhancement improvements focused on upgrading the sidewalk and ADA facilities					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 300			
Con			\$ 2,300		
Total FY 2010-2014 Cost		\$ 2,600			
Pe = Engineering Con = Construction					

Pe = Engineering
Con = Construction

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Location

Project Description:

The Front Street (Route 62) Corridor currently consists of a four-lane road from Pumphouse Road to Wilson Avenue. Front Street can be accessed from First Street/Wilson Avenue, Imperial Street, Second Street and Pumphouse Road. In addition, vehicles traveling east along Front Street have access to the CVS parking area via a right-in/right-out access point. The existing traffic volumes, which are consistent with future volumes, are low enough to allow for a potential “road diet” along the Front Street Corridor. In addition to a potential reduction of travel lanes, the Front Street Corridor could also be enhanced to provide for bicycle and pedestrian facilities, as well as additional traffic calming through the use of roundabouts at the First Street/Wilson Avenue and Second Street intersections.

The term “road diet” is associated with the reduction of traveled lanes along a roadway while

still providing a facility that meets the current and future traffic demand. The proposed lane reduction would reduce the existing four-lane roadway (two lanes in each direction) to a three-lane roadway, which would include one lane per direction and a left turn lane/median area. The elimination of two thru lanes would allow for sufficient space for the median/left turn area, as well as designated pedestrian/bicycle facilities. The median area would provide an opportunity for a landscaped area to provide a more welcoming entrance to the City’s south side. The goal of the pedestrian/bicycle facilities would be to provide a sidewalk facility on the south side of Front Street and a shared-use facility on the north side. These improvements should also help to reduce the travel speeds along this section of Front Street.

Project Characteristics

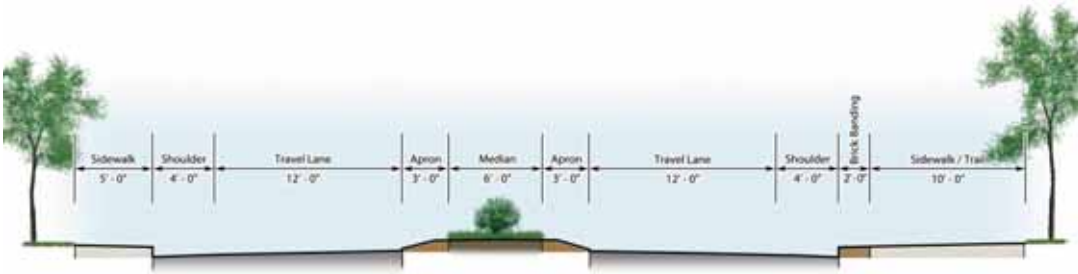
Priority Level	High
Project Partners	PennDOT, NWPRPDC, Venango County, SS Business Association, Property / Business Owners, Oil Region Alliance
Cost	\$3.25 to \$3.5 Million
Funding Opportunities	EDA—Public Works and Economic Development PennDOT—Pennsylvania Community Transportation Initiative/ Smart Transportation

Front Street (Route 62) Corridor



Existing Conditions

Venango					
MPMS#		Municipality:			
Title: Front Street (Rt 62) Corridor Improvements		Route: 62		Section: 481 A/Q Status:	
Improvement Type: Corridor Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: US Route 62 from Pumphouse Road to the intersection with First Street / Wilson Avenue.					
Narrative: Roadway Improvements along US Route 62 (Front Street) including "Road Diet" reducing the 4-lane roadway to a 3-lane section.					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 390			
Con			\$ 2,900		
Total FY 2010-2014 Cost		\$ 3,290		Pe = Engineering Con = Construction	



Front Street (Route 62) Corridor

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Location

Project Description:

The existing intersection of Front Street/Wilson Avenue/First Street provides a unique opportunity for a gateway to the City of Oil City's south side. This could be accomplished through the inclusion of a single lane roundabout at this location. In order for the roundabout to function as a single lane facility, it would need to be implemented following or along with the **Front Street Corridor Improvements** which reduce the typical roadway section from a 4-lane to a 3-lane section. A roundabout would not only provide the necessary gateway feature, but it would also provide an effective traffic control option, including reducing speeds as vehicles enter town.

The proposed roundabout could be constructed to incorporate the existing fountain and associated landscaping into the center island area.



Current Conditions



Potential Improvements

Project Characteristics

Priority Level	High
Project Partners	PennDOT, NWPRPDC, Venango County, Business Associations, Property / Business Owners, Oil Region Alliance
Cost	\$550,000 to \$600,000
Funding Opportunities	EDA—Public Works and Economic Development PennDOT—PCTI/Smart Transportation FHWA—Capital Investments in Surface Transportation Infrastructure

First Street Roundabout

Existing Conditions



Venango					
MPMS#		Municipality:			
Title: First Street Roundabout Improvements		Route: 62		Section: 481	A/Q Status:
Improvement Type: Corridor Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Front Street (US Rt 62) and (First Street/Wilson Avenue) Intersection					
Narrative: Single lane roundabout to include Front Street, First Street and Wilson Avenue					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$70			
Con			\$510		
Total FY 2010-2014 Cost			\$580		
Pe = Engineering Con = Construction					

Pe = Engineering
Con = Construction



First Street Roundabout

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Description:

Within the downtown core of the south side of Oil City, the focus of the streetscape improvements will be to bring together transportation improvements with land use, and coordinate pedestrian facilities within the business and commercial districts of the study area. Improvements in this area are to include full streetscape enhancements, including the following:

- Concrete sidewalks
- Decorative brick pavers (buffer area)
- Pedestrian lighting
- Traffic signal improvements
- Amenities (Benches, Trash receptacles, Bicycle Racks)
- Decorative crosswalks
- ADA curb ramps
- Infrastructure Improvements (Water & Stormwater Improvements)
- Street trees
- Signage

These improvements could be completed at once or phased as funding becomes available.



Project Characteristics

Priority Level	Middle
Project Partners	PennDOT, NWPRPDC, SS Business Association, SS Neighborhood Association, Oil Valley Chapter of the PA Council of the Blind, Property / Business Owners, Oil Region Alliance
Cost	\$300,000 to \$350,000 / Block Face (block sample First St from Central to State)
Funding Opportunities	DCED—Community & Municipal Facilities Assistance Program DCED—Elm Street EDA—Community Infrastructure ARRA Grant

Downtown Core Streetscape



Existing Conditions



Venango					
MPMS#		Municipality:			
Title: Downtown Core Streetscape		Route:		Section:	A/Q Status:
Improvement Type: Streetscape Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Downtown area bounded by Petroleum Street, Front Street, Second Street and Wilson Avenue.					
Narrative: Pedestrian enhancement improvements focused on upgrading the sidewalk and ADA facilities within the Downtonw Core of the South Side of the City of Oil City					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 40			
Con			\$ 300		
Total FY 2010-2014 Cost		\$ 340	(per one block face)		
Pe = Engineering Con = Construction					

Pe = Engineering
Con = Construction



Current Conditions



Potential Improvements

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Location

Project Description:

Pedestrian connections across the Allegheny River, connecting the south side to the north side include the State Street and Petroleum Street bridges. These two bridges are close to one another and provide a direct connection to the two downtown core areas of each of the north and south sides. There is also an existing Wye Railroad bridge which also crosses the Allegheny River east of the State Street Bridge, near the eastern limits of the study area. The bridge is currently posted for “no pedestrian” but it is commonly used by pedestrians. The bridge connects the Siverly residential neighborhood on the north side to the commercial, residential and other areas on the south side. The Wye Bridge contains an active rail line which services Continental Plastic Containers approximately three to four times per month.

Improvements to the existing bridge would be a strategic solution to provide pedestrian and bicycle use to connect the north and south sides of the river. Improvements to the bridge could include a new trail surface with a railing/fence to separate the trail from the active rail line, lighting, and repainting of the structure.

Improvements to the bridge would include the following:

- General bridge surface repairs
- Stone dust trail
- 4' handrail separating the trail and rail
- 5' wide pedestrian sidewalk
- Repainting of bridge structure

Such improvements would provide a safe and convenient access and could be tied into other improvements

Project Characteristics

Priority Level	Middle
Project Partners	NWPRPDC, Venango County, Council on Greenways and Trails, Oil Region Alliance
Cost	\$350,000 to \$375,000
Funding Opportunities	FHWA—Capital Investments in Surface Transportation Infrastructure—ARRA

Railroad “Wye” Bridge



Venango					
MPMS#		Municipality:			
Title: Railroad Bridge		Route: 62		Section: 481	A/Q Status:
Improvement Type: Bridge Restoration					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Railroad crossing of Allegheny River, near Pumphouse Road					
Narrative: Pedestrian and safety improvements focused on providing pedestrian facilities, as well as promoting walking and cycling opportunities across the Allegheny River.					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 45			
Con			\$ 325		
Total FY 2010-2014 Cost			\$ 370	Pe = Engineering Con = Construction	



Railroad Bridge

Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Description:

Open space along the southern banks of the Allegheny River provides a convenient opportunity for a hiker/biker trail within the study area. The proposed trail could stretch from the Veteran's Memorial Bridge to the Wye Railroad Bridge and connect to future trail extensions. The goal of this improvement is to create a pedestrian facility that promotes pedestrian and bicycle use, serving recreational, as well as transportation, purposes.

The proposed 10' wide facility would consist of a handicapped accessible trail surface similar to the high standard surfaces used throughout the Oil Region system of trails. By introducing this improvement along with the Wye Bridge improvement, City residents could enjoy a healthier way of living through safe walking and biking, and also through a reduction in automobile use, noise, air pollution and greenhouse gas emissions.

Project Characteristics

Priority Level	Other
Project Partners	NWPRPDC, Venango County, Council on Greenways & Trails, Oil Region Alliance
Cost	\$500,000 to \$550,000
Funding Opportunities	Bikes Belong Coalition—Bikes Belong Program EDA—Public Works & Economic Development Bikes Belong Coalition—REI/Bicycle Friendly Communities Grants



Existing Conditions



Venango					
MPMS#		Municipality:			
Title: Rail/Trail		Route: 62		Section: 481 A/Q Status:	
Improvement Type: Streetscape Improvements					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Southern Bank of the Allegheny River within the City of Oil City					
Narrative: Conversion of existing rail ROW to Rail with Trail Facility focused on providing alternative modes of travel into and from the City of Oil City					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$ 65			
Con			\$ 475		
Total FY 2010-2014 Cost			\$ 540	Pe = Engineering Con = Construction	

Pe = Engineering
Con = Construction



Route 62 Smart Transportation Study

Oil City, Pennsylvania



Project Location

Project Description:

The proposed public plaza is located adjacent to the First Street and Front Street intersection. The goal of this improvement is to create a beautiful pedestrian gathering facility within the study area in a location that is positioned close to the downtown core area of the south side, as well as access to the views and potential recreation opportunities along the Allegheny River.

The proposed plaza space could include an open space area that includes the existing pavilion. The open space area would provide a year-round passive space. The open space could also be used for special events, including the Oil Heritage Festival, fairs and other community events.

Elements of the plaza space would need to include a retaining wall to increase the level area at the Front Street elevation. The level area could be constructed of concrete sidewalk, concrete paver

sidewalk, a combination of concrete and concrete paver sidewalk or another type of hard walkway surface. The plaza would provide a river overlook outlined by an appropriate height railing. Potential exists for the plaza area to include a seating area, possibly integrated with a series of retaining/seating walls, to provide bleacher type seating for viewing of kayaking or other events along the river. The plaza area would need to provide pedestrian access to other potential improvements within the area. This would include a pedestrian walkway to the downtown core via the Front Street and State Street intersection, a pedestrian walkway to the commercial area via the Front Street and First Street intersection and pedestrian access to a future trail along the Allegheny River via an ADA accessible ramp from the plaza area to the lower banks of the river. Other key elements of the public plaza would include appropriate scaled lighting to provide the necessary security and site furnishings including benches, trash receptacles and bicycle racks.

Project Characteristics

Priority Level	Other
Project Partners	NWPRPDC, Venango County, Council on Greenways & Trail, Oil Region Alliance
Cost	\$950,000 to \$1 Million
Funding Opportunities	EDA—Planning Program EDA—Community Infrastructure ARRA Grant DCED—Community & Municipal Facilities Assistance Program USDA—Community Facilities Loans and Grants



Existing Conditions

Venango					
MPMS#		Municipality:			
Title: Public Plaza		Route: 62		Section: 481 A/Q Status:	
Improvement Type: Greenway Improvement					
Est. Let Date:		Actual Let Date:			
Geographic Limits: Southern bank of the Allegheny River, near Front Street / Wilson Avenue Intersection					
Narrative: Public space improvements, including a plaza area for special events & pedestrian facilities linking a future trail to the South Side of the City of Oil City					
TIP Program Years (\$000)					
Phase	Fund	Yr 1	Yr 2	Yr 3	Yr 4
Pe		\$115			
Con			\$845		
Total FY 2010-2014 Cost			\$960	Pe = Engineering Con = Construction	





Appendices





Appendix A: Community Participation Report



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Appendix A: Community Participation

Appendix A.1: Introduction

Appendix A.1.1: Study Area / Vision Statement

A Vision Statement describes desired future conditions for a community, neighborhood or transportation corridor such as the Route 62 Corridor. The following Draft Vision Statement for the Corridor was distributed for comment by the steering committee.

Route 62 Corridor *Smart Transportation Study*



Draft Corridor Vision Statement (Original)

Enhance the Route 62 Corridor in the city of Oil City to be a model of PennDOT's Smart Transportation initiative by coordinating transportation improvements with land use, infrastructure and community development decisions. The developed implementation strategy will establish a safe, inviting and sustainable commercial area within the south side business district focused on improving vehicular and pedestrian safety. This desirable destination will provide an exceptional shopping and dining experience on the south side of Oil City as well as provide amenities that identify this area as an essential part of our community.



Draft Corridor Vision Statement (Revised)

Enhance the Route 62 Corridor within Oil City to be a model of PennDOT's Smart Transportation initiative by coordinating transportation improvements with land use, infrastructure, economic development and community revitalization. Implementation strategies and community revitalization projects will strengthen a sense of place and establish safe, inviting, aesthetically pleasing and sustainable commercial and residential neighborhoods within the South Side Business District. Transportation improvements will address vehicular, transit, bicycle and pedestrian safety, accessibility and mobility. Improvements will enhance the Corridor and other streets to provide connections to and from residential and commercial neighborhoods and the waterfront for all modes of transportation. Transportation improvements will provide an opportunity for renewed development within and around the Corridor, continued community growth and a variety of amenities which establish this area as a unique place attracting residents, businesses and visitors.

Appendix A.1.2: Steering Committee

The steering committee was created to volunteer their time to assist, review and comment on the Corridor Study. The Committee met, on average, every two months throughout the planning process that extended from February 2010 through August 2010.

Appendix A.1.3: Business Association

The business association was created to gather input and insight on the Route 62 Corridor Study.

Appendix A.1.4: Public Meetings

Public meetings were held at various locations on the Southside of Oil City. These meetings were designed to inform the public on the study and to gather their input for future recommendations.



Appendix A.2: Committees

Appendix A.2.1: Steering Committee

Steering Committee Members met on the following dates:

February 1, 2010

April 21, 2010

June 30, 2010

August 25, 2010

Appendix A.2.2: Business Association

Business Association Members met on the following sates:

February 1, 2010

Appendix A.2.3: Public Meetings

Public Meetings were held on the following dates:

April 21, 2010

September 2, 2010



Appendix A.3: Scheduled Meetings

Appendix A.3.1: February 1, 2010 Steering Committee

The first Steering Committee Meeting was held on February 1, 2010.

Appendix A.3.1.1: Agenda

Northwest PA Regional Planning & Development Commission US Route 62 Smart Transportation Study

Steering Committee Meeting February 1, 2010

Meeting Agenda

- I. Review of Smart Transportation Principles/Overview of Project (10 minutes)
- II. Data Gathering (10 minutes)
 1. Review of Items Received
 2. Review of Items Needed
 3. Land Use Data Collection
- III. Summary of Existing Conditions Analysis (20 minutes)
 1. Vehicular Traffic
 2. Pedestrian Traffic
 3. Parking
 4. Signing
- IV. Discussion on Future Conditions Analysis (15 minutes)
 1. Growth Rate Assumption
 2. Confirmation of no redevelopment projects
 3. Potential improvements
- V. Group Activity (15 minutes)
 1. Ranking of project goals, objective & issues
- VI. Public Involvement Approach (20 minutes)
 1. Southside Business Association
 2. City Council meeting
 3. Meetings with individuals/groups
 4. Public Meeting approach
 - Date, location & notification
- VII. Review of Project Schedule (10 minutes)
- VIII. General Discussion (10 minutes)



Appendix A.3.1.1: Strengths, Weaknesses, Opportunities & Threats (SWOT)

The following is a summary of the top strengths, weaknesses, and opportunities and threats identified and prioritized by the meeting attendees.

The purpose of the SWOT activity is to provide an opportunity for local residents, businesses, and organizations to identify the community's assets and opportunities as well as weakness and threats. Participants were asked to react to the following questions to identify community strengths, weaknesses, opportunities and threats.

STRENGTHS (S) – List the physical, social and regulatory assets of the community.

What makes this community unique?

What do I like about this community?

What is contributing to a positive community image?

WEAKNESSES (W) – List the physical, social or regulatory obstacles or shortcomings of the community.

What do I dislike about this community?

What would I like to see less of in this community?

What is contributing to a poor community image?

OPPORTUNITIES (O) – List the physical and social entities or assets of the community that are underutilized or undeveloped.

Where are opportunities for new development and/or preservation?

Where are opportunities for change?

What would I like to see more of in this community?

What could change the image of this community?

THREATS (T) – List the physical and social entities or assets and regulations that detract from the community or if left unchecked could diminish quality of life for residents and businesses in the community.

What prevents this community from flourishing?

What are obstacles to community development and/or preservation?

What detracts from a positive community image?

Upon completion of identification of issues or review of identified issues, participants were given an opportunity to identify the level of importance for various items listed.



Participants ranked their community assets, opportunities, weaknesses and threats by using a priority scale.

- High Priority = 5
- High to Medium Priority = 4
- Medium Priority = 3
- Medium to Low Priority = 2
- Low Priority = 1

The average was calculated for each strength, weaknesses, opportunity and threat using this scale.

The following provides a summary listing of the issues and concerns identified through the SWOT activity conducted with the Steering Committee's input from the meetings held on February 1, 2010.

Strengths
Families can benefit from improvements
Businesses along 2nd Street
Library and other attractions for pedestrians
Local commitment for audible signal (funds) need more funding
Central Avenue control
Existing capacity to work with
Thru traffic
Improving the area
Riverview
Tourism, river, walking, unique shops
Trails
Historic district, arch and walking tour

Weaknesses	Overall Average
Antiquated traffic signals	4.50
Sight distance at Country Fair, fountain, first 62, Central Avenue / First	4.25
Educate community - speeding and not yielding to pedestrians	3.75
Central / First focus improvements needed due to proximity to many activities	3.57
Central and First pedestrian traffic	3.44
Country Fair disorganized traffic / safety	2.92
RR separates community from river	2.50
Poor aesthetics at gateways	2.50
East 2nd no defined crosswalks	2.19
Blighted properties	2.08
Location of parking at Central and First	1.75
Parking or perceived lack of parking	1.25



Opportunities	Overall Average
Pedestrian enhancements to enhance community	4.75
Safety - walkability	4.44
Wye bridge - pedestrian bridge	3.50
Traffic calming	3.33
Rail corridor possibilities hiking / biking	2.97
Enhanced signage for attractions (signing district in place)	2.81
More economic development with better access	2.50
Bike lanes / runners lanes and events	2.19
Wide roads allows for use by other modes, traffic calming, etc.	2.08
Biketrail / signing / wayfinding - tourism	2.08
More use of facilities	1.25
Transportation improvements spark - private investment to remove blight	1.25

Threats	Overall Average
RR Bridge	4.38
Stricter enforcement of traffic laws - pedestrians and vehicles	4.17
Economy	4.00
Funding	2.72
Utility Involvement	2.41
Coordination of all groups	1.67



Appendix A.3.2: February 1, 2010 Business Association

The first Business Association Meeting was held on February 1, 2010.

Appendix A.3.2.1: Agenda

Meeting Agenda...

- ❖ 1:00 – 1:10 Sign-in & Introductions
- ❖ 1:10 – 1:30 Project Overview
- ❖ 1:30 – 1:45 SWOT Activity
- ❖ 1:45 – 2:00 Visual Preference Survey
- ❖ 2:00 – 2:15 Identification of Next Steps

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Appendix A.3.2.2: Strengths, Weaknesses, Opportunities & Threats (SWOT)

The following is a summary of the top strengths, weaknesses, and opportunities and threats identified and prioritized by the meeting attendees.

The purpose of the SWOT activity is to provide an opportunity for local residents, businesses, and organizations to identify the community's assets and opportunities as well as weakness and threats. Participants were asked to react to the following questions to identify community strengths, weaknesses, opportunities and threats.

STRENGTHS (S) – List the physical, social and regulatory assets of the community.

What makes this community unique?

What do I like about this community?

What is contributing to a positive community image?

WEAKNESSES (W) – List the physical, social or regulatory obstacles or shortcomings of the community.

What do I dislike about this community?

What would I like to see less of in this community?

What is contributing to a poor community image?

OPPORTUNITIES (O) – List the physical and social entities or assets of the community that are underutilized or undeveloped.

Where are opportunities for new development and/or preservation?

Where are opportunities for change?

What would I like to see more of in this community?

What could change the image of this community?

THREATS (T) – List the physical and social entities or assets and regulations that detract from the community or if left unchecked could diminish quality of life for residents and businesses in the community.

What prevents this community from flourishing?

What are obstacles to community development and/or preservation?

What detracts from a positive community image?

Upon completion of identification of issues or review of identified issues, participants were given an opportunity to identify the level of importance for various items listed.

Participants ranked their community assets, opportunities, weaknesses and threats by using a priority scale.

High Priority = 5

High to Medium Priority = 4

Medium Priority = 3

Medium to Low Priority = 2

Low Priority = 1

The average was calculated for each strength, weaknesses, opportunity and threat using this scale.

The following provides a summary listing of the issues and concerns identified through the SWOT activity conducted with the Business Association's input from the meetings held on February 1, 2010.



Strengths	Overall Average
Heavy volume - transit / commuter traffic	4.64
Diverse business mix - with full occupancy	4.30
Scenic river views	3.70
Posted low speeds	3.70
Close walking distance to residential neighborhoods	3.67
People (happy)	3.55
Open plaza area	3.55
Low crime rate	3.50
Four churches	3.33
Public library	3.13
YMCA / YWCA	2.91

Weaknesses	Overall Average
Traffic speed	4.90
Intersections - high rate of accidents	4.64
Central Avenue - Right turns not stopping for pedestrians	4.18
Traffic violations (wrong direction on one way street)	3.80
Signage - street signs / missing stop signs / one way street signs	3.73
Vehicles not yielding to pedestrians in crosswalks	3.60
Poverty (significant population)	3.45
Drainage - blocks / crosswalks (First / Central)	3.27
Lack of place for snow removal	3.27
Dropoff for YMCA is dangerous	3.00
First Street - tunnel vision	2.80

Opportunities	Overall Average
Safety for pedestrians - no right turn on red (Central)	4.70
Consistent speed enforcement	4.40
Light at Wilson / First	4.40
Slow traffic - traffic calming	4.30
More defined area for farmers market	4.00
Pedestrian crossing signs in roadway	4.00
Improvement of blighted properties	4.00
Better street signs - larger lettering	3.80
More plantings, benches, and trashcans	3.30
Two way street system	3.20
Sidewalks at appropriate locations	3.10



Threats	Overall Average
Business disruption during construction (phased)	4.80
Blighted buildings - out of town / state owner, little resources	4.60
Economy - need customers with more disposable income	4.00
Seasonal amenities needed (retail sector)	3.33
Vandalism in alleys - graffiti	3.30
Out of town criminal elements	3.20
Holidays - major traffic jams (regional traffic)	2.90

Appendix A.3.2.3: Visual Preference Survey

Summary of Visual Preference Survey

A visual preference survey (VPS) is an innovative and successful technique that enables citizens to evaluate physical images of natural and built environments. The process involves asking participants to view and evaluate a wide variety of slides depicting streetscapes, land use, site design, building type, aesthetics and amenities. Individual scores indicate the level of preference for images viewed during the survey. The results are analyzed to determine what is appropriate for the Corridor. The visual preference survey was conducted during the Business Association Meeting on February 1, 2010. The following includes analysis methodology, presentation of results, a summary of preferences and the images used in the VPS.

Methodology

Individuals attending the meeting were asked to view numbered pictures which depicted various images of natural and built environments. Each participant was provided a sheet or a response card to record their response indicating appropriateness of the suitability of the development or setting for the Corridor. Individuals responded to twenty nine images. Response options included strongly oppose, oppose, no preference, some preference, and strong preference.

Following the meeting, the survey sheets were collected and tallied. Each response option was assigned a weight factor, whereby the weights included: strongly oppose (-2), oppose (-1), no preference (0), some preference (1), and strong preference (2). The number of responses for each response option was summed and an average response value was calculated for each slide.

Visual Preference Survey Results

Overall, responses to the survey were favorable with some preference, or an average response value of 0.50. There were several images with strong preference, and several with strong opposition. The top preferred images included 10, 13, 15, 20, 21 and 25, with an average value of 1.53 (strong preference); while the top opposed images included 2, 12, 14, 22, 24 and 29, with an average value of -0.68. The following is a summary of images of the highest preferred and least preferred images.

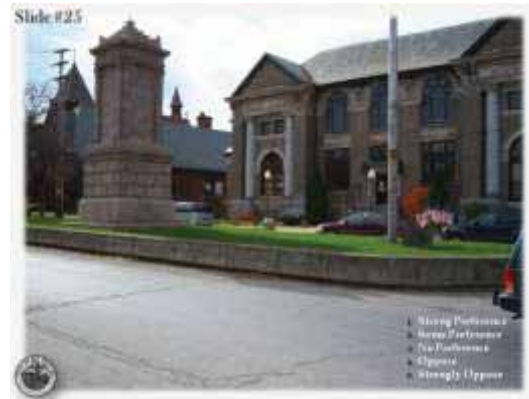


Highest Preference Images

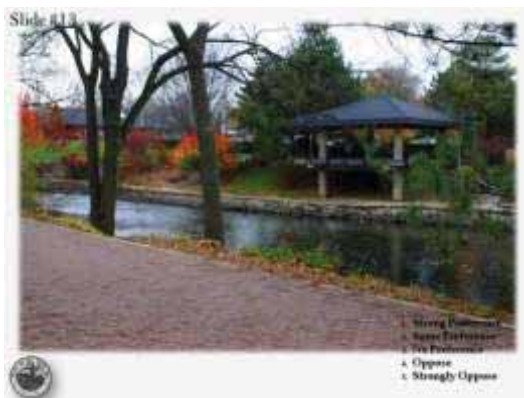
These images suggest a higher importance should be placed on public space such as picnic areas, sidewalks, trails, paths and parks. Historical landmarks and signage were preferred images.



Average: 2.00



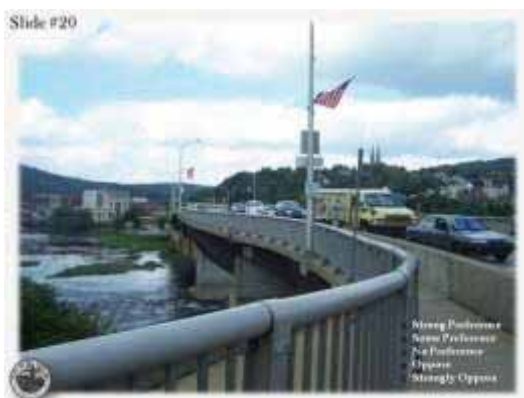
Average: 1.70



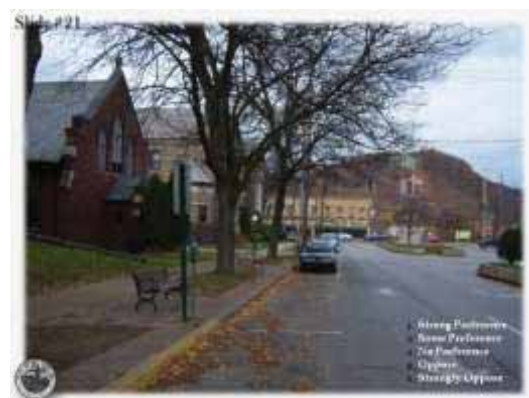
Average: 1.50



Average: 1.40



Average: 1.30

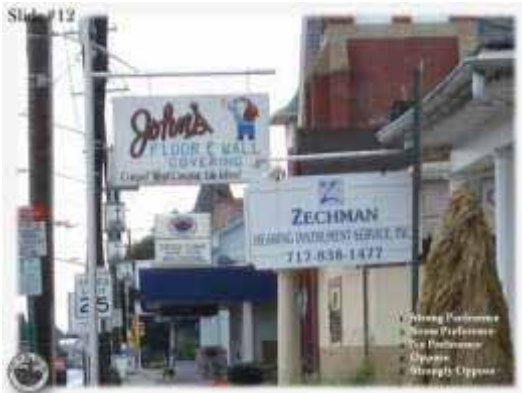


Average: 1.30



Lowest Preference Images

These images suggest a higher importance should be placed on streetscape enhancements and signage.



Average: -0.90



Average: -0.90



Average: -0.80



Average: -0.60



Average: -0.50



Average: -0.40



Overall, the images provide a guide for the types of public spaces desired as well as types of uses and structures requiring rehabilitation or redevelopment, and desired or undesired design elements and aesthetics. The results of the survey are used to provide insight to design land use strategies and design standards for various locations throughout the Corridor.

Image Number	Average Value
1	0.90
2	-0.60
3	0.60
4	0.40
5	0.40
6	0.10
7	1.20
8	0.20
9	1.10
10	2.00
11	0.10
12	-0.90
13	1.50
14	-0.50
15	1.40
16	0.00
17	0.80
18	0.40
19	0.50
20	1.30
21	1.30
22	-0.40
23	1.00
24	-0.80
25	1.70
26	0.00
27	1.00
28	0.60
29	-0.90
Overall Average	0.50



Appendix A.3.3: April 21, 2010 City Council

The first City Council Meeting was held on February 1, 2010.

Appendix A.3.3.1: Agenda

Meeting Agenda...

- ❖ Sign-in & Introductions
- ❖ Smart Transportation Approach
- ❖ Project Overview
- ❖ Evaluation of Alternatives
- ❖ Project Schedule
- ❖ Questions

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Appendix A.3.4: April 21, 2010 Steering Committee

The second Steering Committee Meeting was held on April 21, 2010.

Appendix A.3.4.1: Agenda

Northwest PA Regional Planning & Development Commission US Route 62 Smart Transportation Study

Steering Committee Meeting April 21, 2010

Meeting Agenda

- I. Review of First Steering Committee Meeting & South Side Business Association Meeting (10 minutes)
 1. Meeting Minutes
 2. Community Involvement Document
- II. Summary of Recent Data Collection and Field Collection Efforts (20 minutes)
 3. Comprehensive Waterways Plan (Mackin)
 4. Comprehensive Land Use Plan (GCCA)
 5. Sidewalk Conditions
 6. Current Land Use
 7. Building Conditions
- III. Summary of Public Meeting Material (40 minutes)
 1. Revised Vision Statement
 2. SWOT Activity
 3. Streetscape Concept
 4. Boulevard (3 lane section) Concept
 5. Roundabouts
 6. Pedestrian Bridge
- IV. General Discussion (10 minutes)

Steering Committee Members in attendance were able to complete the activities in Section 3.4. Their results are included in Section 3.4.



Appendix A.3.5: April 21, 2010 Public Meeting

The first Public Meeting was held on April 21, 2010.

Appendix A.3.5.1: Agenda

Meeting Agenda...

- ❖ 7:00 – 7:10 Sign-in & Introductions
- ❖ 7:10 – 7:30 Project Overview Presentation
- ❖ 7:30 – 7:45 Visual Preference Survey
- ❖ 7:45 – 8:30 Public Involvement / “Exercise” Activity

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Appendix A.3.5.2: Study Area / Vision Statement

A Vision Statement describes desired future conditions for a community, neighborhood or transportation corridor such as Route 62 Corridor. Please review the Draft Vision Statement for the Corridor and provide and suggested changes.

Draft Corridor Vision Statement (Revised)

Enhance the Route 62 Corridor within Oil City to be a model of PennDOT's Smart Transportation initiative by coordinating transportation improvements with land use, infrastructure, economic development and community revitalization. Implementation strategies and community revitalization projects will strengthen a sense of place and establish safe, inviting, aesthetically pleasing and sustainable commercial and residential neighborhoods within the South Side Business District. Transportation improvements will address vehicular, transit, bicycle and pedestrian safety, accessibility and mobility. Improvements will enhance the Corridor and other streets to provide connections to and from residential and commercial neighborhoods and the waterfront for all modes of transportation. Transportation improvements will provide an opportunity for renewed development within and around the Corridor, continued community growth and a variety of amenities which establish this area as a unique place attracting residents, businesses and visitors.

Comments provided by the public include:

- Long
- I feel the Southside of Oil City to be the future heart of a new Venango City, because of Venango campus, stores, library and Y's. Future Venango City should extend to Bredinsburg Road.
- Yes
- Sounds good
- Good vision
- Sounds good

Appendix A.3.5.3: SWOT Activity

The Corridor possesses the following strengths:

- Proximity of residential and commercial districts
- Diverse business mix with full capacity
- High volume of traffic to access commercial uses
- Scenic River Views
- Library, Churches, YMCA / YWCA and other attractions

The following is a summary of key corridor issues identified as weaknesses, opportunities and threats. The Key Corridor issues were ranked from 1 to 12, with 1 being the highest priority.



<u>Key Corridor Issues</u>	<u>Ranking</u>
A. Sight distance concerns at several intersections (Weakness)	3.8
G. Right turns not stopping for pedestrians (Weakness)	4.5
C. Pedestrian enhancements and safety (Opportunity)	4.6
B. Economy and Funding (Threat)	4.7
F. Blighted buildings (Threat)	5.2
D. Railroad bridge / Pedestrian bridge (Threat / Opportunity)	5.3
E. Traffic calming (Opportunity)	5.4
J. Traffic speed (Weakness)	6.1
H. Bike facilities (Opportunity)	6.7
I. Enhanced Signage (Opportunity)	6.9

Appendix A.3.5.4: Build – A – Streetscape (Business District)

Please select all components that you would like the study to consider for future streetscape improvements within the South Side Business District.

<u>Streetscape Elements</u>	<u>Ranking</u>
Street Trees / Landscape Plantings	12
Concrete / Brick Pavers	11
Benches	11
Pedestrian Scale Lighting	10
Trash Receptacles	9
Bumpouts	8
Decorative Crosswalks	8
Decorative Traffic Signals	7
Banners	4

Comments provided by the public include:

- Landscape plantings for stormwater management and shading, etc.
- I would like the Southside (present) to become the new Venango City like it originally was back in the 1840's and 1850's before oil. If the speeders won't slow down on Route 62 East I would like to see some speed bumps in place.
- No bumpouts.
- Try to work with Main Street Design Committee and Garden Club. Stormwater runoff should be assessed with a more environmental approach. Streetscape on the east end would enliven a utilitarian avenue.



Appendix A.3.5.5: Route 62 Boulevard

Please identify all features the study should analyze as part of the alternatives considered for Route 62.

<u>Route 62 Boulevard</u>	<u>Responses</u>
Pedestrian sidewalk on south side of Route 62.	9
Median with potential Hardscape / Landscape improvements.	8
Two thru lanes (one per direction) with left turn "Pockets."	7
Trail along north side of Route 62 with potential for additional riverfront public space.	7

Comments provided by the public include:

- Nice medians
- Maintenance and above. Do the bike and pedestrian trail.
- Without a proper riverfront any walkways would be underutilized.

Appendix A.3.5.6: Roundabouts

Proper implementation of roundabouts can provide the following benefits:

- Provide a means to calm traffic
- Can serve as a gateway feature
- Reduces frequency and severity of crashes
- When compared to a signal alternative, roundabouts can reduce traffic delays and increase traffic capacity

Please provide your opinion on consideration of a roundabout to be studied to address traffic safety and traffic speed issues.

<u>Roundabouts</u>	<u>Responses</u>
Favor the implementation of roundabouts at both the Wilson Street / First Street and Second Street intersections.	7
Do not favor roundabouts along the study area.	3
Favor the implementation of a roundabout at the Wilson Street / First Street intersection only.	2
Favor the implementation of a roundabout at the Second Street intersection only.	0

Comments provided by the public include:

- Too much for our little town.
- Concerns about east side pedestrian crossing.
- Wilson / Second is a wonderful intersection for pedestrians.



Appendix A.3.5.7: Visual Preference Survey

Summary of Visual Preference Survey

A visual preference survey (VPS) is an innovative and successful technique that enables citizens to evaluate physical images of natural and built environments. The process involves asking participants to view and evaluate a wide variety of slides depicting streetscapes, land use, site design, building type, aesthetics and amenities. Individual scores indicate the level of preference for images viewed during the survey. The results are analyzed to determine what is appropriate for the Corridor. The visual preference survey was conducted during the Public Meeting on April 21, 2010. The following includes analysis methodology, presentation of results, a summary of preferences and the images used in the VPS.

Methodology

Individuals attending the meeting were asked to view numbered pictures which depicted various images of natural and built environments. Each participant was provided a sheet or a response card to record their response indicating appropriateness of the suitability of the development or setting for the Corridor. Individuals responded to twenty nine images. Response options included strongly oppose, oppose, no preference, some preference, and strong preference.

Following the meeting, the survey sheets were collected and tallied. Each response option was assigned a weight factor, whereby the weights included: strongly oppose (-2), oppose (-1), no preference (0), some preference (1), and strong preference (2). The number of responses for each response option was summed and an average response value was calculated for each slide.

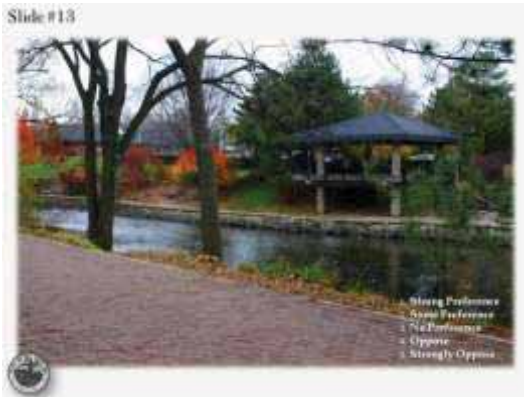
Visual Preference Survey Results

Overall, responses to the survey were marginal with some preference, or an average response value of 0.18. There were several images with strong preference, and several with strong opposition. The top preferred images included 13, 10, 23, 5, 7 and 25, with an average value of 1.45 (strong preference); while the top opposed images included 2, 12, 14, 22, 24 and 29, with an average value of -1.05. The following is a summary of images of the highest preferred and least preferred images.



Highest Preference Images

These images suggest a higher importance should be placed on public space such as picnic areas, sidewalks, trails, paths and parks. Historical landmarks and signage were preferred images.



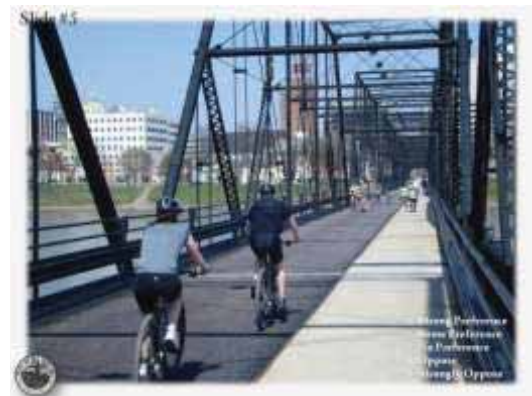
Average: 1.85



Average: 1.70



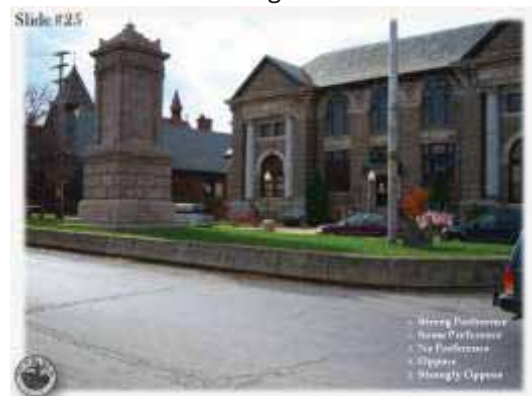
Average: 1.45



Average: 1.37



Average: 1.15



Average: 1.15



Lowest Preference Images

These images suggest a higher importance should be placed on streetscape enhancements and signage.



Average: -1.50



Average: -1.37



Average: -1.25



Average: -0.90



Average: -0.68



Average: -0.60



Overall, the images provide a guide for the types of public spaces desired as well as types of uses and structures requiring rehabilitation or redevelopment, and desired or undesired design elements and aesthetics. The results of the survey are used to provide insight to design land use strategies and design standards for various locations throughout the Corridor.

Image Number	Average Value
1	0.75
2	-1.50
3	0.15
4	-0.35
5	1.37
6	-0.11
7	1.15
8	-0.20
9	0.68
10	1.70
11	-0.30
12	-1.37
13	1.85
14	-0.90
15	1.11
16	-0.40
17	0.15
18	-0.20
19	-0.05
20	0.60
21	0.85
22	-0.60
23	1.45
24	-0.68
25	1.15
26	-0.50
27	0.40
28	0.20
29	-1.25
Overall Average	0.18



Appendix A.3.5.8: Miscellaneous

Do you feel the railroad bridge should be studied for use by pedestrians?

Comments provided by the public include:

- Pedestrians and bicycles
- Yes, walking traffic from Siverly
- Yes
- Yes
- Yes
- Yes
- It gets used study or not
- Yes
- Yes
- Yes
- Yes, all stores and banks and most businesses frequented by Siverly residents are on the southside.

Do you have any concerns related to parking within the project study area?

Comments provided by the public include:

- Some parking needs to be eliminated or improved.
- No
- Always
- Yes
- Fear of loss by many businesses
- Yes
- Diagonal parking on Central Avenue.
- Yes
- Back out of diagonal spaces can be risky.

Other ideas / comments / concerns...

Comments provided by the public include:

- Consider bike lanes
- Concern for pedestrians crossing near roundabouts.
- Turn on red at all traffic lights.
- Sidewalk rehabilitation for the east end. Most ranked poorly. More bus stops, too few and far between.



Appendix A.3.6: June 30, 2010 Steering Committee

The third Steering Committee Meeting was held on June 30, 2010.

Appendix A.3.6.1 Agenda

Northwest PA Regional Planning & Development Commission US Route 62 Smart Transportation Study

**Steering Committee Meeting No. 3
June 30, 2010**

Meeting Agenda

- I. Review of Public Meeting Results (30 minutes)
 - 1. Visual Preference Survey
 - 2. Draft Corridor Vision Statement
 - 3. SWOT Analysis
 - 4. Build A Streetscape
 - 5. Route 62 Boulevard
 - 6. Roundabouts
- II. Transportation Solutions (30 minutes)
 - 1. Review of Improvements
 - 2. Prioritization Exercise
- III. Community Improvement Solutions (20 minutes)
- IV. Next Steps / Schedule (10 minutes)



Appendix A.3.7: August 25, 2010 Steering Committee

The fourth Steering Committee Meeting was held on August 25, 2010.

Appendix A.3.7.1 Agenda

Northwest PA Regional Planning & Development Commission US Route 62 Smart Transportation Study

Steering Committee Meeting No. 4
August 25, 2010

Meeting Agenda

- I. Review of Draft Report (70 minutes)
 1. Section 4.0 – Analysis of Improvement Options & Solutions
 - Transportation
 - Land Use
 2. Section 5.0 – Action Plan
 - General Discussion on Priorities
- II. Public Meeting (10 minutes)
 1. Date – September 2, 2010 (Library)
 - 7:00 PM
 2. Format –
 - Presentation
 - Display Review / General Comment Period
- III. General Discussion



Appendix A.3.8: August 30, 2010 City Council

The second Steering City Council Meeting was held on August 30, 2010.

Appendix A.3.8.1 Agenda

Meeting Agenda...

- ❖ Sign-in & Introductions
- ❖ Project Overview
- ❖ Transportation Strategies
- ❖ Revitalization Strategies
- ❖ PCTI Funding Opportunities
- ❖ Questions

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Appendix A.3.9: September 2, 2010 Public Meeting

The second Public Meeting was held on September 2, 2010.

Appendix A.3.9.1: Agenda

Meeting Agenda...

- ❖ 7:00 – 7:10 Sign-in & Introductions
- ❖ 7:10 – 7:15 Project Overview
- ❖ 7:15 – 7:30 Project Presentation
- ❖ 7:30 – 8:00 Review Board Displays & Questions

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Appendix B: Traffic Count Data

NOVEMBER 2009
TRAFFIC COUNTS

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : Intersection 1 (Front-Petroleum)
Site Code : 00000001
Start Date : 11/10/2009
Page No : 1

Groups Printed- Pass. Veh. - Trucks - Bikes																								
Petroleum St Bridge						Petroleum St						Front Street						Front Street						
Southbound						Northbound						Eastbound						Westbound						
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total			
07:00 AM	0	33	0	0	33	0	53	0	2	55	8	0	0	0	8	9	0	41	0	50	146			
07:15 AM	0	33	0	0	33	0	67	0	0	67	9	0	0	0	9	6	0	49	0	55	164			
07:30 AM	0	45	0	0	45	0	66	0	0	66	8	0	2	0	10	31	0	85	0	116	237			
07:45 AM	0	52	0	1	53	0	84	0	0	84	7	0	6	0	13	52	0	51	1	104	254			
Total	0	163	0	1	164	0	270	0	2	272	32	0	8	0	40	98	0	226	1	325	801			
08:00 AM	0	47	0	0	47	0	54	0	0	54	13	0	1	0	14	36	0	42	1	79	194			
08:15 AM	0	42	0	1	43	0	72	0	0	72	5	0	2	2	9	26	0	50	0	76	200			
08:30 AM	0	26	0	0	26	0	76	0	0	76	6	0	1	0	7	27	0	52	0	79	188			
08:45 AM	0	30	0	0	30	0	74	0	0	74	2	0	0	0	2	23	0	48	0	71	177			
Total	0	145	0	1	146	0	276	0	0	276	26	0	4	2	32	112	0	192	1	305	759			
*** BREAK ***																								
04:00 PM	0	42	0	0	42	0	108	0	0	108	6	0	2	0	8	60	0	84	0	144	302			
04:15 PM	0	40	0	0	40	0	104	0	0	104	8	0	2	0	10	45	0	58	0	103	257			
04:30 PM	0	61	0	1	62	0	136	0	0	136	11	0	0	0	11	52	0	58	1	111	320			
04:45 PM	0	51	0	1	52	0	137	0	2	139	7	0	2	0	9	43	0	73	2	118	318			
Total	0	194	0	2	196	0	485	0	2	487	32	0	6	0	38	200	0	273	3	476	1197			
05:00 PM	0	55	0	0	55	0	119	0	3	122	4	0	3	2	9	60	0	77	0	137	323			
05:15 PM	0	35	0	1	36	0	110	0	0	110	10	0	2	0	12	41	0	64	0	105	263			
05:30 PM	0	45	0	0	45	0	98	0	0	98	6	0	1	0	7	34	0	54	0	88	238			
05:45 PM	0	24	0	0	24	0	83	0	0	83	10	0	6	2	18	49	0	33	0	82	207			
Total	0	159	0	1	160	0	410	0	3	413	30	0	12	4	46	184	0	228	0	412	1031			
Grand Total	0	661	0	5	666	0	1441	0	7	1448	120	0	30	6	156	594	0	919	5	1518	3788			
Approch % Total %	0	99.2	0	0.8		0	99.5	0	0.5		76.9	0	19.2	3.8		39.1	0	60.5	0.3					
	0	17.4	0	0.1	17.6	0	38	0	0.2	38.2	3.2	0	0.8	0.2	4.1	15.7	0	24.3	0.1	40.1				
Pass. Veh.	0	651	0	5	656	0	1400	0	6	1406	118	0	30	5	153	589	0	897	5	1491	3706			
% Pass. Veh.	0	98.5	0	100	98.5	0	97.2	0	85.7	97.1	98.3	0	100	83.3	98.1	99.2	0	97.6	100	98.2	97.8			
Trucks	0	10	0	0	10	0	41	0	0	41	2	0	0	0	2	5	0	22	0	27	80			
% Trucks	0	1.5	0	0	1.5	0	2.8	0	0	2.8	1.7	0	0	0	1.3	0.8	0	2.4	0	1.8	2.1			
Bikes	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	2			
% Bikes	0	0	0	0	0	0	0	0	14.3	0.1	0	0	0	16.7	0.6	0	0	0	0	0	0.1			



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Petroleum St Northbound				Petroleum St Bridge Southbound				Front Street Eastbound				Front Street Westbound									
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total					
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	45	0	0	45	0	66	0	0	66	8	0	2	0	10	31	0	85	0	116	237
07:45 AM	0	52	0	1	53	0	84	0	0	84	7	0	6	0	13	52	0	51	1	104	254
08:00 AM	0	47	0	0	47	0	54	0	0	54	13	0	1	0	14	36	0	42	1	79	194
08:15 AM	0	42	0	1	43	0	72	0	0	72	5	0	2	2	9	26	0	50	0	76	200
Total Volume	0	186	0	2	188	0	276	0	0	276	33	0	11	2	46	145	0	228	2	375	885
% App. Total	0	98.9	0	1.1		0	100	0	0		71.7	0	23.9	4.3		38.7	0	60.8	0.5		
PHF	.000	.894	.000	.500	.887	.000	.821	.000	.000	.821	.635	.000	.458	.250	.821	.697	.000	.671	.500	.808	.871
Pass. Veh.	0	181	0	2	183	0	263	0	0	263	32	0	11	1	44	141	0	222	2	365	855
% Pass. Veh.	0	97.3	0	100	97.3	0	95.3	0	0	95.3	97.0	0	100	50.0	95.7	97.2	0	97.4	100	97.3	96.6
Trucks	0	5	0	0	5	0	13	0	0	13	1	0	0	0	1	4	0	6	0	10	29
% Trucks	0	2.7	0	0	2.7	0	4.7	0	0	4.7	3.0	0	0	0	2.2	2.8	0	2.6	0	2.7	3.3
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	50.0	2.2	0	0	0	0	0	0.1
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	61	0	1	62	0	136	0	0	136	11	0	0	0	11	52	0	58	1	111	320
04:45 PM	0	51	0	1	52	0	137	0	2	139	7	0	2	0	9	43	0	73	2	118	318
05:00 PM	0	55	0	0	55	0	119	0	3	122	4	0	3	2	9	60	0	77	0	137	323
05:15 PM	0	35	0	1	36	0	110	0	0	110	10	0	2	0	12	41	0	64	0	105	263
Total Volume	0	202	0	3	205	0	502	0	5	507	32	0	7	2	41	196	0	272	3	471	1224
% App. Total	0	98.5	0	1.5		0	99	0	1		78	0	17.1	4.9		41.6	0	57.7	0.6		
PHF	.000	.828	.000	.750	.827	.000	.916	.000	.417	.912	.727	.000	.583	.250	.854	.817	.000	.883	.375	.859	.947
Pass. Veh.	0	201	0	3	204	0	497	0	5	502	32	0	7	2	41	196	0	269	3	468	1215
% Pass. Veh.	0	99.5	0	100	99.5	0	99.0	0	100	99.0	100	0	100	100	100	100	0	98.9	100	99.4	99.3
Trucks	0	1	0	0	1	0	5	0	0	5	0	0	0	0	0	0	0	3	0	3	9
% Trucks	0	0.5	0	0	0.5	0	1.0	0	0	1.0	0	0	0	0	0	0	0	1.1	0	0.6	0.7
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

	Central Northbound						Central Southbound						Front Eastbound						Front Westbound					
Start Time	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:30 AM																								
07:30 AM	19	0	0	1	20		0	0	0	0	0		0	0	0	0	1	1	8	103	0	0	111	132
07:45 AM	11	0	0	0	11		0	0	0	0	0		0	0	0	0	0	0	19	96	0	0	115	126
08:00 AM	10	0	0	0	10		0	0	0	0	0		0	0	0	0	0	0	18	69	0	0	87	97
08:15 AM	12	0	0	0	12		0	0	0	0	0		0	0	0	0	0	0	20	58	0	0	78	90
Total Volume	52	0	0	1	53		0	0	0	0	0		0	0	0	0	1	1	65	326	0	0	391	445
% App. Total	98.1	0	0	1.9			0	0	0	0	0		0	0	0	0	100		16.6	83.4	0	0		
PHF	.684	.000	.000	.250	.663		.000	.000	.000	.000	.000		.000	.000	.000	.000	.250	.250	.813	.791	.000	.000	.850	.843
Pass. Veh.	52	0	0	1	53		0	0	0	0	0		0	0	0	0	1	1	62	315	0	0	377	431
% Pass. Veh.	100	0	0	100	100		0	0	0	0	0		0	0	0	0	100	100	95.4	96.6	0	0	96.4	96.9
Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	3	11	0	0	14	14
% Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	4.6	3.4	0	0	3.6	3.1
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 04:00 PM																								
04:00 PM	26	0	0	0	26		0	0	0	0	0		0	0	0	0	0	0	52	103	0	0	155	181
04:15 PM	19	0	0	0	19		0	0	0	2	2		0	0	0	0	0	0	37	100	0	0	137	158
04:30 PM	18	0	0	0	18		0	0	0	1	1		0	0	0	1	1	1	44	102	0	0	146	166
04:45 PM	19	0	0	1	20		0	0	0	1	1		0	0	0	2	2	2	34	93	0	0	127	150
Total Volume	82	0	0	1	83		0	0	0	4	4		0	0	0	3	3	3	167	398	0	0	565	655
% App. Total	98.8	0	0	1.2			0	0	0	100			0	0	0	100			29.6	70.4	0	0		
PHF	.788	.000	.000	.250	.798		.000	.000	.000	.500	.500		.000	.000	.000	.375	.375	.375	.803	.966	.000	.000	.911	.905
Pass. Veh.	82	0	0	1	83		0	0	0	4	4		0	0	0	3	3	3	167	388	0	0	555	645
% Pass. Veh.	100	0	0	100	100		0	0	0	100	100		0	0	0	100	100	100	100	97.5	0	0	98.2	98.5
Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	10	0	0	10	10
% Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	2.5	0	0	1.8	1.5
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0



Groups Printed- Pass Veh. - Trucks - Bikes

Groups Limited- Pass Veh. - Trucks - Bikes																						
		State						Front						Front								
		Northbound			Southbound			Eastbound			Westbound											
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
07:00 AM	0	26	0	1	27	0	37	10	0	47	0	0	0	0	0	0	1	31	47	2	81	155
07:15 AM	0	40	0	0	40	0	63	21	0	84	0	0	0	0	0	0	2	41	52	0	95	219
07:30 AM	0	23	0	0	23	0	89	38	0	127	0	0	0	0	1	1	2	63	47	1	113	264
07:45 AM	0	30	0	0	30	0	57	44	0	101	0	0	0	0	0	0	0	60	62	0	122	253
Total	0	119	0	1	120	0	246	113	0	359	0	0	0	0	1	1	5	195	208	3	411	891
08:00 AM	0	43	0	0	43	0	62	48	1	111	0	0	0	0	1	1	2	51	66	2	121	276
08:15 AM	0	27	0	0	27	0	81	33	0	114	0	0	0	0	0	0	2	41	58	0	101	242
08:30 AM	0	34	0	1	35	0	86	23	0	109	0	0	0	0	1	1	0	48	51	1	100	245
08:45 AM	0	29	0	3	32	0	69	28	0	97	0	0	0	0	0	0	2	60	71	4	137	266
Total	0	133	0	4	137	0	298	132	1	431	0	0	0	0	2	2	6	200	246	7	459	1029
*** BREAK ***																						
04:00 PM	0	30	0	2	32	0	102	48	0	150	0	0	0	0	3	3	3	67	105	2	177	362
04:15 PM	0	29	0	1	30	0	105	45	0	150	0	0	0	0	0	0	4	79	105	3	191	371
04:30 PM	0	35	0	0	35	0	98	55	0	153	0	0	0	2	2	2	7	57	111	5	180	370
04:45 PM	0	38	0	0	38	0	104	63	0	167	0	0	0	0	2	2	4	62	101	5	172	379
Total	0	132	0	3	135	0	409	211	0	620	0	0	0	0	7	7	18	265	422	15	720	1482
05:00 PM	0	36	0	1	37	0	108	61	0	169	0	0	0	0	5	5	4	71	113	8	196	407
05:15 PM	0	39	0	0	39	0	77	52	1	130	0	0	0	0	3	3	5	65	115	4	189	361
05:30 PM	0	32	0	0	32	0	90	40	0	130	0	0	0	0	1	1	7	51	95	3	156	319
05:45 PM	0	33	0	0	33	0	89	58	0	147	0	0	0	0	5	5	5	64	72	8	149	334
Total	0	140	0	1	141	0	364	211	1	576	0	0	0	0	14	14	21	251	395	23	690	1421
Grand Total	0	524	0	9	533	0	1317	667	2	1986	0	0	0	0	24	24	50	911	1271	48	2280	4823
Approch %	0	98.3	0	1.7		0	66.3	33.6	0.1		0	0	0	0	100		2.2	40	55.7	2.1		
Total %	0	10.9	0	0.2	11.1	0	27.3	13.8	0	41.2	0	0	0	0	0.5	0.5	1	18.9	26.4	1	47.3	
Pass Veh.	0	520	0	9	529	0	1304	662	2	1968	0	0	0	0	24	24	50	884	1268	48	2250	4771
% Pass Veh.	0	99.2	0	100	99.2	0	99	99.3	100	99.1	0	0	0	0	100	100	100	97	99.8	100	98.7	98.9
Trucks	0	4	0	0	4	0	13	5	0	18	0	0	0	0	0	0	0	27	3	0	30	52
% Trucks	0	0.8	0	0	0.8	0	1	0.7	0	0.9	0	0	0	0	0	0	0	3	0.2	0	1.3	1.1
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*** BREAK ***

[illegible][illegible]

Groups Printed- Pass Veh. - Trucks - Bikes

Start Time	Wilson Northbound						Wilson Southbound						Front Eastbound						Front Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	25	0	0	0	25		0	0	0	0	0		0	0	0	0	0		0	83	0	0	83	108
07:15 AM	26	0	0	0	26		0	0	0	0	0		0	0	0	0	0		0	86	0	0	86	112
07:30 AM	22	0	0	0	22		0	0	0	0	0		0	0	0	0	0		0	86	0	0	86	108
07:45 AM	34	0	0	1	35		0	0	0	0	0		0	0	0	0	0		0	136	0	0	136	171
Total	107	0	0	1	108		0	0	0	0	0		0	0	0	0	0		0	391	0	0	391	499
08:00 AM	45	0	0	0	45		0	0	0	0	0		0	0	0	0	0		0	107	0	0	107	152
08:15 AM	36	0	0	0	36		0	0	0	0	0		0	0	0	0	0		0	69	0	0	69	105
08:30 AM	35	0	0	0	35		0	0	0	0	0		0	0	0	0	0		0	70	0	0	70	105
*** BREAK ***																								
Total	116	0	0	0	116		0	0	0	0	0		0	0	0	0	0		0	246	0	0	246	362
*** BREAK ***																								
03:45 PM	64	0	1	0	65		0	0	0	0	0		0	0	0	0	0		0	129	0	0	129	194
Total	64	0	1	0	65		0	0	0	0	0		0	0	0	0	0		0	129	0	0	129	194
04:00 PM	85	0	0	0	85		0	0	0	0	0		0	0	0	0	0		0	110	0	0	110	195
04:15 PM	73	0	0	0	73		0	0	0	0	0		0	0	0	0	0		0	110	0	0	110	183
04:30 PM	63	0	0	0	63		0	0	0	0	0		0	0	0	0	0		0	114	0	0	114	177
04:45 PM	73	0	0	0	73		0	0	0	0	0		0	0	0	0	0		0	116	0	0	116	189
Total	294	0	0	0	294		0	0	0	0	0		0	0	0	0	0		0	450	0	0	450	744
05:00 PM	66	0	0	0	66		0	0	0	0	0		0	0	0	0	0		0	109	0	0	109	175
05:15 PM	58	0	0	1	59		0	0	0	0	0		0	0	0	0	0		0	122	0	0	122	181
05:30 PM	51	0	0	0	51		0	0	0	0	0		0	0	0	0	0		0	110	0	0	110	161
05:45 PM	51	0	0	0	51		0	0	0	4	4		0	0	0	0	0		0	86	0	0	86	141
Total	226	0	0	1	227		0	0	0	4	4		0	0	0	0	0		0	427	0	0	427	658
Grand Total	807	0	1	2	810		0	0	0	4	4		0	0	0	0	0		0	1643	0	0	1643	2457
Approch %	99.6	0	0.1	0.2			0	0	0	100			0	0	0	0	0		0	100	0	0		
Total %	32.8	0	0	0.1	33		0	0	0	0.2	0.2		0	0	0	0	0		0	66.9	0	0	66.9	
Pass Veh.	801	0	1	2	804		0	0	0	4	4		0	0	0	0	0		0	1604	0	0	1604	2412
% Pass Veh.	99.3	0	100	100	99.3		0	0	0	100	100		0	0	0	0	0		0	97.6	0	0	97.6	98.2
Trucks	6	0	0	0	6		0	0	0	0	0		0	0	0	0	0		0	39	0	0	39	45
% Trucks	0.7	0	0	0	0.7		0	0	0	0	0		0	0	0	0	0		0	2.4	0	0	2.4	1.8
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:45 PM

			Wilson Northbound				Wilson Southbound				Front Eastbound				Front Westbound						
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	26	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	86	0	0	86	112
07:30 AM	22	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	86	0	0	86	108
07:45 AM	34	0	0	1	35	0	0	0	0	0	0	0	0	0	0	0	136	0	0	136	171
08:00 AM	45	0	0	0	45	0	0	0	0	0	0	0	0	0	0	0	107	0	0	107	152
Total Volume	127	0	0	1	128	0	0	0	0	0	0	0	0	0	0	0	415	0	0	415	543
% App. Total	99.2	0	0	0.8		0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
PHF	.706	.000	.000	.250	.711	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.763	.000	.000	.763	.794
Pass Veh.	122	0	0	1	123	0	0	0	0	0	0	0	0	0	0	0	406	0	0	406	529
% Pass Veh.	96.1	0	0	100	96.1	0	0	0	0	0	0	0	0	0	0	0	97.8	0	0	97.8	97.4
Trucks	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	14
% Trucks	3.9	0	0	0	3.9	0	0	0	0	0	0	0	0	0	0	0	2.2	0	0	2.2	2.6
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	64	0	1	0	65	0	0	0	0	0	0	0	0	0	0	0	129	0	0	129	194
04:00 PM	85	0	0	0	85	0	0	0	0	0	0	0	0	0	0	0	110	0	0	110	195
04:15 PM	73	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	110	0	0	110	183
04:30 PM	63	0	0	0	63	0	0	0	0	0	0	0	0	0	0	0	114	0	0	114	177
Total Volume	285	0	1	0	286	0	0	0	0	0	0	0	0	0	0	0	463	0	0	463	749
% App. Total	99.7	0	0.3	0		0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
PHF	.838	.000	.250	.000	.841	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.897	.000	.000	.897	.960
Pass Veh.	284	0	1	0	285	0	0	0	0	0	0	0	0	0	0	0	452	0	0	452	737
% Pass Veh.	99.6	0	100	0	99.7	0	0	0	0	0	0	0	0	0	0	0	97.6	0	0	97.6	98.4
Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	12
% Trucks	0.4	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	2.4	0	0	2.4	1.6
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : Intersection 5 (First-Petroleum)
Site Code : 00000005
Start Date : 11/10/2009
Page No : 1

Start Time	Petroleum Northbound						Petroleum Southbound						1st Eastbound						1st Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	3	1	0	5		37	5	21	0	63		29	25	0	0	54		0	0	0	0	0	122
07:15 AM	1	5	1	0	7		29	6	33	0	68		29	42	2	0	73		0	0	0	0	0	148
07:30 AM	1	5	0	0	6		34	6	64	1	105		39	27	0	0	66		0	0	0	1	1	178
07:45 AM	3	3	1	0	7		42	14	84	2	142		46	32	2	0	80		0	0	0	0	0	229
Total	6	16	3	0	25		142	31	202	3	378		143	126	4	0	273		0	0	0	1	1	677
08:00 AM	3	11	0	0	14		29	8	56	0	93		37	52	3	0	92		0	0	0	2	2	201
08:15 AM	0	5	0	1	6		36	6	53	2	97		37	42	1	0	80		0	0	0	0	0	183
08:30 AM	1	4	0	0	5		43	7	54	1	105		20	32	0	0	52		0	0	0	1	1	163
08:45 AM	0	4	1	1	6		45	7	42	1	95		26	37	0	2	65		0	0	0	0	0	166
Total	4	24	1	2	31		153	28	205	4	390		120	163	4	2	289		0	0	0	3	3	713
*** BREAK ***																								
04:00 PM	3	3	0	0	6		79	9	81	2	171		37	52	0	0	89		0	0	0	0	0	266
04:15 PM	4	6	3	0	13		60	12	77	4	153		33	29	0	0	62		0	0	0	1	1	229
04:30 PM	2	10	1	1	14		81	17	92	9	199		53	40	1	0	94		0	0	0	2	2	309
04:45 PM	2	12	3	0	17		80	12	89	1	182		41	27	0	0	68		0	0	0	2	2	269
Total	11	31	7	1	50		300	50	339	16	705		164	148	1	0	313		0	0	0	5	5	1073
05:00 PM	1	4	0	0	5		81	12	87	3	183		50	51	1	0	102		0	0	0	2	2	292
05:15 PM	1	8	2	2	13		76	11	73	0	160		30	33	1	0	64		0	0	0	3	3	240
05:30 PM	1	6	0	0	7		58	9	65	0	132		39	41	0	0	80		0	0	0	3	3	222
05:45 PM	1	9	2	0	12		65	8	66	3	142		21	40	1	0	62		0	0	0	2	2	218
Total	4	27	4	2	37		280	40	291	6	617		140	165	3	0	308		0	0	0	10	10	972
Grand Total	25	98	15	5	143		875	149	1037	29	2090		567	602	12	2	1183		0	0	0	19	19	3435
Approch %	17.5	68.5	10.5	3.5			41.9	7.1	49.6	1.4			47.9	50.9	1	0.2			0	0	0	100		
Total %	0.7	2.9	0.4	0.1	4.2		25.5	4.3	30.2	0.8	60.8		16.5	17.5	0.3	0.1	34.4		0	0	0	0.6	0.6	
Pass Veh.	24	98	15	5	142		854	148	1026	26	2054		557	597	12	2	1168		0	0	0	19	19	3383
% Pass Veh.	96	100	100	100	99.3		97.6	99.3	98.9	89.7	98.3		98.2	99.2	100	100	98.7		0	0	0	100	100	98.5
Trucks	1	0	0	0	1		21	1	11	1	34		10	5	0	0	15		0	0	0	0	0	50
% Trucks	4	0	0	0	0.7		2.4	0.7	1.1	3.4	1.6		1.8	0.8	0	0	1.3		0	0	0	0	0	1.5
Bikes	0	0	0	0	0		0	0	0	2	2		0	0	0	0	0		0	0	0	0	0	2
% Bikes	0	0	0	0	0.1		0	0	0	6.9	0.1		0	0	0	0	0		0	0	0	0	0	0.1



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

[illegible]



*** BREAK ***

Groups Printed- Pass Veh. - Trucks - Bikes																					
Central						Central						1st						1st			
Northbound						Southbound						Eastbound						Westbound			
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	18	14	0	32	2	4	0	0	6	0	49	0	1	50	0	0	0	0	0	88
07:15 AM	0	16	18	0	34	2	11	0	0	13	3	53	3	0	59	0	0	0	0	0	106
07:30 AM	0	14	18	0	32	3	6	0	0	9	6	63	1	1	71	0	0	0	0	0	112
07:45 AM	0	14	23	1	38	2	16	0	0	18	1	58	4	0	63	0	0	0	0	0	119
Total	0	62	73	1	136	9	37	0	0	46	10	223	8	2	243	0	0	0	0	0	425
08:00 AM	0	11	32	2	45	4	12	0	1	17	2	81	2	0	85	0	0	0	0	0	147
08:15 AM	0	14	14	2	30	6	15	0	0	21	4	73	6	1	84	0	0	0	0	0	135
08:30 AM	0	11	16	0	27	5	4	0	0	9	6	57	5	0	68	0	0	0	1	1	105
08:45 AM	0	13	16	1	30	10	10	0	1	21	1	56	7	2	66	0	0	0	1	1	118
Total	0	49	78	5	132	25	41	0	2	68	13	267	20	3	303	0	0	0	2	2	505
*** BREAK ***																					
04:00 PM	0	21	25	4	50	17	36	0	1	54	6	73	8	1	88	0	0	0	1	1	193
04:15 PM	0	13	27	2	42	12	28	0	2	42	7	72	13	3	95	0	0	0	3	3	182
04:30 PM	0	9	20	1	30	9	29	0	3	41	4	74	10	6	94	0	0	0	0	0	165
04:45 PM	0	12	23	1	36	17	25	0	0	42	9	103	14	5	131	0	0	0	1	1	210
Total	0	55	95	8	158	55	118	0	6	179	26	322	45	15	408	0	0	0	5	5	750
05:00 PM	0	10	18	2	30	13	20	0	8	41	7	90	14	4	115	0	0	0	5	5	191
05:15 PM	0	16	23	1	40	11	23	0	3	37	4	105	21	2	132	0	0	0	2	2	211
05:30 PM	0	10	19	3	32	9	14	0	3	26	6	97	6	2	111	0	0	0	3	3	172
05:45 PM	0	10	21	1	32	5	17	0	2	24	6	61	14	1	82	0	0	0	1	1	139
Total	0	46	81	7	134	38	74	0	16	128	23	353	55	9	440	0	0	0	11	11	713
Grand Total	0	212	327	21	560	127	270	0	24	421	72	1165	128	29	1394	0	0	0	18	18	2393
Approch %	0	37.9	58.4	3.8		30.2	64.1	0	5.7		5.2	83.6	9.2	2.1		0	0	0	100		
Total %	0	8.9	13.7	0.9	23.4	5.3	11.3	0	1	17.6	3	48.7	5.3	1.2	58.3	0	0	0	0.8	0.8	
Pass Veh.	0	209	322	21	552	125	266	0	24	415	72	1111	126	29	1338	0	0	0	18	18	2323
% Pass Veh.	0	98.6	98.5	100	98.6	98.4	98.5	0	100	98.6	100	95.4	98.4	100	96	0	0	0	100	100	97.1
Trucks	0	3	5	0	8	2	4	0	0	6	0	54	2	0	56	0	0	0	0	0	70
% Trucks	0	1.4	1.5	0	1.4	1.6	1.5	0	0	1.4	0	4.6	1.6	0	4	0	0	0	0	0	2.9
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

Groups Printed- Pass Veh. - Trucks - Bikes

Start Time	State Northbound						State Southbound						1st Eastbound						1st Westbound											
	Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Int. Total	
07:00 AM	0	0	0	0	0	0	40	1	0	1	42	26	35	1	0	62	0	0	0	0	0	0	0	0	0	0	0	0	104	
07:15 AM	0	0	0	0	0	0	65	2	0	0	67	37	36	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	140	
07:30 AM	0	0	0	0	0	0	86	5	0	1	92	27	44	0	2	73	0	0	0	0	0	0	0	0	0	0	0	0	165	
07:45 AM	0	0	0	0	1	1	54	4	0	0	58	32	56	1	1	90	0	0	0	0	0	0	0	0	0	0	0	0	149	
Total	0	0	0	0	1	1	245	12	0	2	259	122	171	2	3	298	0	0	0	0	0	0	0	0	0	0	0	0	558	
08:00 AM	0	0	0	0	1	1	56	2	0	1	59	42	41	3	0	86	0	0	0	0	0	0	0	0	0	0	0	0	146	
08:15 AM	0	0	0	0	0	0	79	4	0	0	83	30	56	1	0	87	0	0	0	0	0	0	0	0	0	0	0	0	170	
08:30 AM	0	0	0	0	1	1	83	2	0	1	86	35	50	2	0	87	0	0	0	0	1	1	1	0	1	1	0	1	175	
08:45 AM	0	0	0	0	0	0	66	4	0	1	71	31	53	1	2	87	0	0	0	0	1	1	1	0	1	1	0	1	159	
Total	0	0	0	0	2	2	284	12	0	3	299	138	200	7	2	347	0	0	0	0	2	2	0	0	0	2	0	0	650	
*** BREAK ***																														
04:00 PM	0	0	0	0	2	2	90	8	0	1	99	32	76	4	2	114	0	0	0	0	4	4	0	0	0	4	0	0	219	
04:15 PM	0	0	0	0	2	2	100	9	0	0	109	31	79	5	1	116	0	0	0	0	2	2	0	0	0	2	0	0	229	
04:30 PM	0	0	0	0	3	3	83	18	0	0	101	38	67	6	3	114	0	0	0	0	5	5	0	0	0	5	0	0	223	
04:45 PM	0	0	0	0	1	1	96	10	0	3	109	39	84	6	5	134	0	0	0	0	1	1	0	0	0	1	0	0	245	
Total	0	0	0	0	8	8	369	45	0	4	418	140	306	21	11	478	0	0	0	0	12	12	0	0	0	12	0	0	916	
05:00 PM	0	0	0	0	0	0	104	7	0	1	112	34	90	6	3	133	0	0	0	0	6	6	0	0	0	6	0	0	251	
05:15 PM	0	0	0	0	4	4	74	6	0	0	80	39	74	10	2	125	0	0	0	0	3	3	0	0	0	3	0	0	212	
05:30 PM	0	0	0	0	2	2	84	11	0	1	96	33	62	4	2	101	0	0	0	0	2	2	0	0	0	2	0	0	201	
05:45 PM	0	0	0	0	6	6	83	6	0	5	94	35	50	5	3	93	0	0	0	0	1	1	0	0	0	1	0	0	194	
Total	0	0	0	0	12	12	345	30	0	7	382	141	276	25	10	452	0	0	0	0	12	12	0	0	0	12	0	0	858	
Grand Total	0	0	0	0	23	23	1243	99	0	16	1358	541	953	55	26	1575	0	0	0	0	26	26	0	0	0	26	0	0	2982	
Approach %	0	0	0	0	100		91.5	7.3	0	1.2		34.3	60.5	3.5	1.7		0	0	0	0	100		0	0	0	100				
Total %	0	0	0	0	0.8	0.8	41.7	3.3	0	0.5	45.5	18.1	32	1.8	0.9	52.8	0	0	0	0	0.9	0.9	0	0	0	0.9	0.9			
Pass Veh.	0	0	0	0	21	21	1225	99	0	16	1340	537	924	53	25	1539	0	0	0	0	25	25	0	0	0	25	25		2925	
% Pass Veh.	0	0	0	0	91.3	91.3	98.6	100	0	100	98.7	99.3	97	96.4	96.2	97.7	0	0	0	0	96.2	96.2	0	0	0	96.2	96.2		98.1	
Trucks	0	0	0	0	0	0	18	0	0	0	18	4	29	2	0	35	0	0	0	0	0	0	0	0	0	0	0	0	53	
% Trucks	0	0	0	0	0	0	1.4	0	0	0	1.3	0.7	3	3.6	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	1.8	
Bikes	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	1	1	0	4	
% Bikes	0	0	0	0	8.7	8.7	0	0	0	0	0	0	0	0	3.8	0.1	0	0	0	0	3.8	3.8	0	0	0	3.8	3.8		0.1	



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM

	State Northbound					State Southbound					1st Eastbound					1st Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	1	1	56	2	0	1	59	42	41	3	0	86	0	0	0	0	0	146
08:15 AM	0	0	0	0	0	79	4	0	0	83	30	56	1	0	87	0	0	0	0	0	170
08:30 AM	0	0	0	1	1	83	2	0	1	86	35	50	2	0	87	0	0	0	1	1	175
08:45 AM	0	0	0	0	0	66	4	0	1	71	31	53	1	2	87	0	0	0	1	1	159
Total Volume	0	0	0	2	2	284	12	0	3	299	138	200	7	2	347	0	0	0	2	2	650
% App. Total	0	0	0	100	.500	95	4	0	1	.869	39.8	57.6	2	0.6	.97	0	0	0	100	.500	.929
PHF	.000	.000	.000	.500	.500	.855	.750	.000	.750	.869	.821	.893	.583	.250	.997	.000	.000	.000	.500	.500	.929
Pass Veh.	0	0	0	2	2	271	12	0	3	286	138	193	6	2	339	0	0	0	2	2	629
% Pass Veh.	0	0	0	100	100	95.4	100	0	100	95.7	100	96.5	85.7	100	97.7	0	0	0	100	100	96.8
Trucks	0	0	0	0	0	13	0	0	0	13	0	7	1	0	8	0	0	0	0	0	21
% Trucks	0	0	0	0	0	4.6	0	0	0	4.3	0	3.5	14.3	0	2.3	0	0	0	0	0	3.2
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	2	2	100	9	0	0	109	31	79	5	1	116	0	0	0	2	2	229
04:30 PM	0	0	0	3	3	83	18	0	0	101	38	67	6	3	114	0	0	0	5	5	223
04:45 PM	0	0	0	1	1	96	10	0	3	109	39	84	6	5	134	0	0	0	1	1	245
05:00 PM	0	0	0	0	0	104	7	0	1	112	34	90	6	3	133	0	0	0	6	6	251
Total Volume	0	0	0	6	6	383	44	0	4	431	142	320	23	12	497	0	0	0	14	14	948
% App. Total	0	0	0	100	.500	88.9	10.2	0	0.9	.962	28.6	64.4	4.6	2.4	.927	0	0	0	100	.583	.944
PHF	.000	.000	.000	.500	.500	.921	.611	.000	.333	.962	.910	.889	.958	.600	.927	.000	.000	.000	.583	.583	.944
Pass Veh.	0	0	0	6	6	382	44	0	4	430	141	317	23	12	493	0	0	0	13	13	942
% Pass Veh.	0	0	0	100	100	99.7	100	0	100	99.8	99.3	99.1	100	100	99.2	0	0	0	92.9	92.9	99.4
Trucks	0	0	0	0	0	1	0	0	0	1	1	3	0	0	4	0	0	0	0	0	5
% Trucks	0	0	0	0	0	0.3	0	0	0	0.2	0.7	0.9	0	0	0.8	0	0	0	0	0	0.5
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.1	7.1	0.1

Groups Printed- Pass Veh. - Trucks - Bikes

Start Time	Wilson Northbound						Wilson Southbound						Eastbound						Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	27	0	0	27		0	0	0	0	0		3	57	25	0	85		0	0	0	0	0	112
07:15 AM	0	32	2	0	34		0	0	0	0	0		0	74	21	1	96		0	0	0	0	0	130
07:30 AM	0	21	0	1	22		0	0	0	0	0		1	76	34	1	112		0	0	0	0	0	134
07:45 AM	0	35	1	0	36		0	0	0	0	0		4	95	38	0	137		0	0	0	1	1	174
Total	0	115	3	1	119		0	0	0	0	0		8	302	118	2	430		0	0	0	1	1	550
08:00 AM	0	41	1	0	42		0	0	0	0	0		5	93	41	0	139		0	0	0	0	0	181
08:15 AM	0	36	0	2	38		0	0	0	0	0		1	97	39	1	138		0	0	0	0	0	176
08:30 AM	0	35	0	0	35		0	0	0	0	0		2	89	32	0	123		0	0	0	0	0	158
08:45 AM	0	25	2	0	27		0	0	0	0	0		1	65	35	0	101		0	0	0	0	0	128
Total	0	137	3	2	142		0	0	0	0	0		9	344	147	1	501		0	0	0	0	0	643
*** BREAK ***																								
04:00 PM	0	86	0	3	89		0	0	0	0	0		6	138	58	2	204		0	0	0	1	1	294
04:15 PM	0	68	1	0	69		0	0	0	0	0		6	107	70	1	184		0	0	0	0	0	253
04:30 PM	1	57	0	1	59		0	0	0	0	0		7	135	64	2	208		0	0	0	0	0	267
04:45 PM	0	66	1	0	67		0	0	0	0	0		9	108	73	0	190		0	0	0	3	3	260
Total	1	277	2	4	284		0	0	0	0	0		28	488	265	5	786		0	0	0	4	4	1074
05:00 PM	0	63	2	0	65		0	0	0	0	0		6	138	65	1	210		0	0	0	1	1	276
05:15 PM	0	59	0	0	59		0	0	0	0	0		2	107	44	0	153		0	0	0	0	0	212
05:30 PM	0	49	0	1	50		0	0	0	0	0		1	94	57	0	152		0	0	0	0	0	202
05:45 PM	0	52	0	0	52		0	0	0	0	0		4	102	47	3	156		0	0	0	5	5	213
Total	0	223	2	1	226		0	0	0	0	0		13	441	213	4	671		0	0	0	6	6	903
Grand Total	1	752	10	8	771		0	0	0	0	0		58	1575	743	12	2388		0	0	0	11	11	3170
Approach %	0.1	97.5	1.3	1			0	0	0	0	0		2.4	66	31.1	0.5			0	0	0	100		
Total %	0	23.7	0.3	0.3	24.3		0	0	0	0	0		1.8	49.7	23.4	0.4	75.3		0	0	0	0.3	0.3	
Pass Veh.	1	747	10	8	766		0	0	0	0	0		58	1537	736	12	2343		0	0	0	11	11	3120
% Pass Veh.	100	99.3	100	100	99.4		0	0	0	0	0		100	97.6	99.1	100	98.1		0	0	0	100	100	98.4
Trucks	0	5	0	0	5		0	0	0	0	0		0	38	7	0	45		0	0	0	0	0	50
% Trucks	0	0.7	0	0	0.6		0	0	0	0	0		0	2.4	0.9	0	1.9		0	0	0	0	0	1.6
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0



BREAK

Groups Printed- Pass Veh. - Trucks - Bikes																						
RT 62 Northbound					RT 62 Southbound					Imperial Eastbound					Imperial Westbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
07:00 AM	0	73	0	0	73	0	57	1	0	58	4	0	0	0	4	0	0	0	0	0	0	135
07:15 AM	0	73	0	0	73	0	67	2	0	69	5	0	1	0	6	0	0	0	0	0	0	148
07:30 AM	0	111	0	0	111	0	79	3	0	82	2	0	1	0	3	0	0	0	0	0	0	196
07:45 AM	0	112	0	0	112	0	94	1	0	95	4	0	2	0	6	0	0	0	0	0	0	213
Total	0	369	0	0	369	0	297	7	0	304	15	0	4	0	19	0	0	0	0	0	0	692
08:00 AM	0	80	0	0	80	0	68	1	0	69	4	0	5	0	9	0	0	0	0	0	0	158
08:15 AM	1	65	0	0	66	0	80	1	0	81	1	0	4	0	5	0	0	0	0	0	0	152
08:30 AM	1	73	0	0	74	0	65	1	0	66	1	0	2	0	3	0	0	0	0	0	0	143
08:45 AM	1	84	0	0	85	0	56	3	0	59	2	0	3	0	5	0	0	0	0	0	0	149
Total	3	302	0	0	305	0	269	6	0	275	8	0	14	0	22	0	0	0	0	0	0	602
*** BREAK ***																						
04:00 PM	2	90	0	0	92	0	108	11	0	119	11	0	7	0	18	0	0	0	0	0	0	229
04:15 PM	2	110	0	0	112	0	100	4	0	104	8	0	10	0	18	0	0	0	0	0	0	234
04:30 PM	4	107	0	0	111	0	93	2	0	95	11	0	0	0	11	0	0	0	0	0	0	217
04:45 PM	3	82	0	0	85	0	106	3	0	109	5	0	3	0	8	0	0	0	0	0	0	202
Total	11	389	0	0	400	0	407	20	0	427	35	0	20	0	55	0	0	0	0	0	0	882
05:00 PM	0	113	0	0	113	0	115	3	0	118	12	0	7	0	19	0	0	0	0	0	0	250
05:15 PM	3	119	0	0	122	0	113	5	0	118	8	0	8	0	16	0	0	0	0	0	0	256
05:30 PM	3	90	0	0	93	0	64	0	0	64	5	0	3	0	8	0	0	0	0	0	0	165
05:45 PM	2	71	0	0	73	0	69	3	0	72	7	0	3	0	10	0	0	0	0	0	0	155
Total	8	393	0	0	401	0	361	11	0	372	32	0	21	0	53	0	0	0	0	0	0	826
Grand Total	22	1453	0	0	1475	0	1334	44	0	1378	90	0	59	0	149	0	0	0	0	0	0	3002
Approch %	1.5	98.5	0	0		0	96.8	3.2	0		60.4	0	39.6	0		0	0	0	0	0		
Total %	0.7	48.4	0	0	49.1	0	44.4	1.5	0	45.9	3	0	2	0	5	0	0	0	0	0	0	
Pass Veh.	22	1405	0	0	1427	0	1288	43	0	1331	89	0	59	0	148	0	0	0	0	0	0	2906
% Pass Veh.	100	96.7	0	0	96.7	0	96.6	97.7	0	96.6	98.9	0	100	0	99.3	0	0	0	0	0	0	96.8
Trucks	0	48	0	0	48	0	46	1	0	47	1	0	0	0	1	0	0	0	0	0	0	96
% Trucks	0	3.3	0	0	3.3	0	3.4	2.3	0	3.4	1.1	0	0	0	0.7	0	0	0	0	0	0	3.2
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	RT 62 Northbound					RT 62 Southbound					Imperial Eastbound					Imperial Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	111	0	0	111	0	79	3	0	82	2	0	1	0	3	0	0	0	0	0	196
07:45 AM	0	112	0	0	112	0	94	1	0	95	4	0	2	0	6	0	0	0	0	0	213
08:00 AM	0	80	0	0	80	0	68	1	0	69	4	0	5	0	9	0	0	0	0	0	158
08:15 AM	1	65	0	0	66	0	80	1	0	81	1	0	4	0	5	0	0	0	0	0	152
Total Volume	1	368	0	0	369	0	321	6	0	327	11	0	12	0	23	0	0	0	0	0	719
% App. Total	0.3	99.7	0	0		0	98.2	1.8	0		47.8	0	52.2	0		0	0	0	0	0	
PHF	.250	.821	.000	.000	.824	.000	.854	.500	.000	.861	.688	.000	.600	.000	.639	.000	.000	.000	.000	.000	.844
Pass Veh.	1	352	0	0	353	0	295	6	0	301	11	0	12	0	23	0	0	0	0	0	677
% Pass Veh.	100	95.7	0	0	95.7	0	91.9	100	0	92.0	100	0	100	0	100	0	0	0	0	0	94.2
Trucks	0	16	0	0	16	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	42
% Trucks	0	4.3	0	0	4.3	0	8.1	0	0	8.0	0	0	0	0	0	0	0	0	0	0	5.8
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	107	0	0	111	0	93	2	0	95	11	0	0	0	11	0	0	0	0	0	217
04:45 PM	3	82	0	0	85	0	106	3	0	109	5	0	3	0	8	0	0	0	0	0	202
05:00 PM	0	113	0	0	113	0	115	3	0	118	12	0	7	0	19	0	0	0	0	0	250
05:15 PM	3	119	0	0	122	0	113	5	0	118	8	0	8	0	16	0	0	0	0	0	256
Total Volume	10	421	0	0	431	0	427	13	0	440	36	0	18	0	54	0	0	0	0	0	925
% App. Total	2.3	97.7	0	0		0	97	3	0		66.7	0	33.3	0		0	0	0	0	0	
PHF	.625	.884	.000	.000	.883	.000	.928	.650	.000	.932	.750	.000	.563	.000	.711	.000	.000	.000	.000	.000	.903
Pass Veh.	10	413	0	0	423	0	421	13	0	434	36	0	18	0	54	0	0	0	0	0	911
% Pass Veh.	100	98.1	0	0	98.1	0	98.6	100	0	98.6	100	0	100	0	100	0	0	0	0	0	98.5
Trucks	0	8	0	0	8	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	14
% Trucks	0	1.9	0	0	1.9	0	1.4	0	0	1.4	0	0	0	0	0	0	0	0	0	0	1.5
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

File Name : Intersection 11 (SR 62-EastSecond)
Site Code : 00000011
Start Date : 11/3/2009
Page No : 1

Groups Printed- Pass Veh. - Trucks - Bikes																								
RT 62 Northbound						RT 62 Southbound						2nd Eastbound						2ND Westbound						
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total			
07:00 AM	7	83	0	0	90	0	65	1	0	66	0	0	6	0	6	0	0	0	0	0	0	162		
07:15 AM	10	76	0	0	86	0	74	0	0	74	0	0	10	0	10	0	0	0	0	0	0	170		
07:30 AM	14	94	0	0	108	0	80	1	0	81	0	0	7	0	7	0	0	0	0	0	0	196		
07:45 AM	12	112	0	0	124	0	93	0	0	93	1	0	13	0	14	0	0	0	0	0	0	231		
Total	43	365	0	0	408	0	312	2	0	314	1	0	36	0	37	0	0	0	0	0	0	759		
08:00 AM	11	84	0	0	95	0	94	0	0	94	1	0	10	0	11	0	0	0	0	0	0	200		
08:15 AM	7	74	0	0	81	0	104	0	0	104	2	0	12	0	14	0	0	0	0	0	0	199		
08:30 AM	18	82	0	0	100	0	91	0	0	91	0	0	13	0	13	0	0	0	0	0	0	204		
08:45 AM	19	87	0	0	106	0	69	0	0	69	0	0	7	0	7	0	0	0	0	0	0	182		
Total	55	327	0	0	382	0	358	0	0	358	3	0	42	0	45	0	0	0	0	0	0	785		
*** BREAK ***																								
04:00 PM	29	117	0	0	146	0	119	0	0	119	0	0	28	0	28	0	0	0	0	0	0	293		
04:15 PM	21	104	0	0	125	0	115	0	0	115	0	0	18	0	18	0	0	0	0	0	0	258		
04:30 PM	25	100	0	0	125	0	117	2	0	119	0	0	28	0	28	0	0	0	0	0	0	272		
04:45 PM	19	96	0	0	115	0	108	1	0	109	0	0	9	0	9	0	0	0	0	0	0	233		
Total	94	417	0	0	511	0	459	3	0	462	0	0	83	0	83	0	0	0	0	0	0	1056		
05:00 PM	24	112	0	0	136	0	135	3	0	138	4	0	27	0	31	0	0	0	0	0	0	305		
05:15 PM	33	98	0	0	131	0	95	1	0	96	1	0	20	0	21	0	0	0	0	0	0	248		
05:30 PM	13	86	0	0	99	0	89	1	0	90	1	0	15	0	16	0	0	0	0	0	0	205		
05:45 PM	17	66	0	0	83	0	81	2	0	83	1	0	17	0	18	0	0	0	0	0	0	184		
Total	87	362	0	0	449	0	400	7	0	407	7	0	79	0	86	0	0	0	0	0	0	942		
Grand Total	279	1471	0	0	1750	0	1529	12	0	1541	11	0	240	0	251	0	0	0	0	0	0	3542		
Approch %	15.9	84.1	0	0		0	99.2	0.8	0		4.4	0	95.6	0		0	0	0	0	0				
Total %	7.9	41.5	0	0	49.4	0	43.2	0.3	0	43.5	0.3	0	6.8	0	7.1	0	0	0	0	0	0			
Pass Veh.	272	1430	0	0	1702	0	1476	11	0	1487	9	0	237	0	246	0	0	0	0	0	0	3435		
% Pass Veh.	97.5	97.2	0	0	97.3	0	96.5	91.7	0	96.5	81.8	0	98.8	0	98	0	0	0	0	0	0	97		
Trucks	7	41	0	0	48	0	53	1	0	54	2	0	3	0	5	0	0	0	0	0	0	107		
% Trucks	2.5	2.8	0	0	2.7	0	3.5	8.3	0	3.5	18.2	0	1.2	0	2	0	0	0	0	0	0	3		
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



File Name : Intersection 11 (SR 62-EastSecond)
Site Code : 0000011
Start Date : 11/3/2009
Page No : 2

	RT 62 Northbound					RT 62 Southbound					2nd Eastbound					2nd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	12	112	0	0	124	0	93	0	0	93	1	0	13	0	14	0	0	0	0	0	231
08:00 AM	11	84	0	0	95	0	94	0	0	94	1	0	10	0	11	0	0	0	0	0	200
08:15 AM	7	74	0	0	81	0	104	0	0	104	2	0	12	0	14	0	0	0	0	0	199
08:30 AM	18	82	0	0	100	0	91	0	0	91	0	0	13	0	13	0	0	0	0	0	204
Total Volume	48	352	0	0	400	0	382	0	0	382	4	0	48	0	52	0	0	0	0	0	834
% App. Total	12	88	0	0		0	100	0	0		7.7	0	92.3	0		0	0	0	0	0	
PHF	.667	.786	.000	.000	.806	.000	.918	.000	.000	.918	.500	.000	.923	.000	.929	.000	.000	.000	.000	.000	.903
Pass Veh.	46	342	0	0	388	0	354	0	0	354	2	0	45	0	47	0	0	0	0	0	789
% Pass Veh.	95.8	97.2	0	0	97.0	0	92.7	0	0	92.7	50.0	0	93.8	0	90.4	0	0	0	0	0	94.6
Trucks	2	10	0	0	12	0	28	0	0	28	2	0	3	0	5	0	0	0	0	0	45
% Trucks	4.2	2.8	0	0	3.0	0	7.3	0	0	7.3	50.0	0	6.3	0	9.6	0	0	0	0	0	5.4
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

File Name : Intersection 12 (Wilson-EastSecond)
Site Code : 00000012
Start Date : 11/18/2009
Page No : 1

Groups Printed- Pass Veh. - Trucks - Bikes

Wilson												Wilson Southbound						Wilson Northbound						2nd Alley Eastbound						2nd St. Westbound																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Start Time	Left			Thru			Right			Peds			App. Total			Left			Thru			Right			Peds			App. Total			Left			Thru			Right			Peds			App. Total			Int. Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

File Name : Intersection 12 (Wilson-EastSecond)
Site Code : 00000012
Start Date : 11/18/2009
Page No : 2

	Wilson Northbound					Wilson Southbound					2nd Alley Eastbound					2nd St. Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	13	3	0	16	25	5	0	3	33	1	0	0	0	1	3	0	29	1	33	83
08:15 AM	0	11	3	1	15	23	9	3	0	35	1	0	0	0	1	5	0	25	0	30	81
08:30 AM	2	8	9	1	20	15	3	2	1	21	0	0	0	0	0	5	0	20	3	28	69
08:45 AM	1	12	10	0	23	20	1	0	3	24	0	0	0	0	0	10	1	25	0	36	83
Total Volume	3	44	25	2	74	83	18	5	7	113	2	0	0	0	2	23	1	99	4	127	316
% App. Total	4.1	59.5	33.8	2.7		73.5	15.9	4.4	6.2		100	0	0	0		18.1	0.8	78	3.1		
PHF	.375	.846	.625	.500	.804	.830	.500	.417	.583	.807	.500	.000	.000	.000	.500	.575	.250	.853	.333	.882	.952
Pass Veh.	3	43	25	2	73	81	18	5	7	111	2	0	0	0	2	23	1	97	4	125	311
% Pass Veh.	100	97.7	100	100	98.6	97.6	100	100	100	98.2	100	0	0	0	100	100	100	98.0	100	98.4	98.4
Trucks	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	2	0	2	5
% Trucks	0	2.3	0	0	1.4	2.4	0	0	0	1.8	0	0	0	0	0	0	0	2.0	0	1.6	1.6
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	2	19	14	0	35	61	12	1	4	78	2	1	1	0	4	19	0	53	0	72	189
04:15 PM	0	15	20	0	35	51	4	0	0	55	2	0	1	0	3	17	1	47	4	69	162
04:30 PM	1	11	16	0	28	58	11	0	9	78	0	0	1	2	3	17	2	46	1	66	175
04:45 PM	0	12	22	0	34	59	8	1	4	72	1	0	1	1	3	29	0	45	0	74	183
Total Volume	3	57	72	0	132	229	35	2	17	283	5	1	4	3	13	82	3	191	5	281	709
% App. Total	2.3	43.2	54.5	0		80.9	12.4	0.7	6		38.5	7.7	30.8	23.1		29.2	1.1	68	1.8		
PHF	.375	.750	.818	.000	.943	.939	.729	.500	.472	.907	.625	.250	1.000	.375	.813	.707	.375	.901	.313	.949	.938
Pass Veh.	3	57	72	0	132	229	35	2	17	283	5	1	4	3	13	81	3	191	5	280	708
% Pass Veh.	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	98.8	100	100	100	99.6	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2	0	0	0	0.4	0.1



*** BREAK ***

Groups Printed- Pass Veh. - Trucks - Bikes																		
	Pine						Parking Lot						2nd					
	Northbound			Southbound			Eastbound			Westbound			2nd					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total		
07:00 AM	0	0	0	1	1	1	1	1	3	6	0	14	0	1	15	9		
07:15 AM	0	0	0	1	1	0	1	4	0	5	1	20	0	0	21	18		
07:30 AM	0	0	0	0	0	1	0	2	0	3	1	20	0	0	21	19		
07:45 AM	0	0	1	0	1	3	0	4	1	8	0	27	2	0	29	21		
Total	0	0	1	2	3	5	2	11	4	22	2	81	2	1	86	67		
08:00 AM	1	0	0	0	1	0	0	7	1	8	0	36	0	0	36	24		
08:15 AM	0	0	1	0	1	1	0	6	0	7	1	33	0	0	34	27		
08:30 AM	1	0	0	1	2	1	0	5	2	8	1	21	1	0	23	27		
08:45 AM	1	0	0	1	2	1	0	6	4	11	2	30	0	1	33	23		
Total	3	0	1	2	6	3	0	24	7	34	4	120	1	1	126	101		
*** BREAK ***																		
04:00 PM	0	1	0	5	6	9	1	9	4	23	4	65	2	1	72	73		
04:15 PM	1	0	4	4	9	8	0	11	7	26	4	66	0	0	70	49		
04:30 PM	0	0	3	2	5	1	0	11	4	16	6	75	2	2	85	62		
04:45 PM	1	0	2	0	3	5	1	13	6	25	5	69	1	1	76	63		
Total	2	1	9	11	23	23	2	44	21	90	19	275	5	4	303	247		
05:00 PM	0	1	0	3	4	8	1	11	11	31	6	62	2	0	70	64		
05:15 PM	1	0	1	0	2	4	2	7	13	26	0	65	3	0	68	64		
05:30 PM	1	0	0	2	3	6	0	6	1	13	2	47	1	0	50	53		
05:45 PM	0	0	1	1	2	3	0	6	2	11	4	45	0	1	50	43		
Total	2	1	2	6	11	21	3	30	27	81	12	219	6	1	238	224		
Grand Total	7	2	13	21	43	52	7	109	59	227	37	695	14	7	753	639		
Approch %	16.3	4.7	30.2	48.8		22.9	3.1	48	26		4.9	92.3	1.9	0.9				
Total %	0.4	0.1	0.8	1.3	2.6	3.1	0.4	6.6	3.5	13.7	2.2	41.8	0.8	0.4	45.3	0.3		
Pass Veh.	7	2	12	21	42	52	7	109	55	223	37	692	14	7	750	635		
% Pass Veh.	100	100	92.3	100	97.7	100	100	100	93.2	98.2	100	99.6	100	100	99.6	99.4		
Trucks	0	0	1	0	1	0	0	0	0	0	0	3	0	0	3	4		
% Trucks	0	0	7.7	0	2.3	0	0	0	0	0	0	0.4	0	0	0.4	0.7		
Bikes	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0		
% Bikes	0	0	0	0	0	0	0	0	6.8	1.8	0	0	0	0	0	0		

File Name : Intersection 13 (EastSecond-Pine)
Site Code : 00000013
Start Date : 11/12/2009
Page No : 2

Start Time	Pine Northbound				Parking Lot Southbound				2nd Eastbound				2nd Westbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	1	0	0	0	1	0	0	7	1	8	0	36	0	23	1	69
08:15 AM	0	0	1	0	1	1	0	6	0	34	0	34	0	26	1	69
08:30 AM	1	0	0	1	2	1	0	5	2	8	1	21	1	27	0	60
08:45 AM	1	0	0	1	2	1	0	6	4	11	2	30	0	21	1	69
Total Volume	3	0	1	2	6	3	0	24	7	34	4	120	1	97	3	267
% App. Total	.750	.000	.250	.500	.750	.750	.000	.857	.438	.773	.500	.833	.250	.898	.750	.967
Pass Veh.	3	0	1	2	6	3	0	24	7	34	4	119	1	96	3	265
% Pass Veh.	100	0	100	100	100	100	0	100	100	100	100	99.2	100	99.0	100	99.3
Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0.8	0	1.0	0	0.7
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	0	0	3	2	5	1	0	11	4	16	6	75	2	58	2	168
04:45 PM	1	0	2	0	3	5	1	13	6	25	5	69	1	63	0	167
05:00 PM	0	1	0	3	4	8	1	11	11	31	6	62	2	61	2	169
05:15 PM	1	0	1	0	2	4	2	7	13	26	0	65	3	59	4	160
Total Volume	2	1	6	5	14	18	4	42	34	98	17	271	8	241	8	664
% App. Total	.500	.250	.500	.417	.700	.563	.500	.808	.654	.790	.708	.903	.667	.956	.500	.982
Pass Veh.	2	1	6	5	14	18	4	42	33	97	17	271	8	241	8	663
% Pass Veh.	100	100	100	100	100	100	100	100	97.1	99.0	100	100	100	100	100	99.8
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
% Bikes	0	0	0	0	0	0	0	0	2.9	1.0	0	0	0	0	0	0.2

File Name : Intersection 14-AM (EastSecond-Imperial)
Site Code : 00000014
Start Date : 11/18/2009
Page No : 1

Groups Printed- Pass Veh. - Trucks - Bikes

Groups Limited- Pass Veh. - Trucks - Bikes																																													
Northbound													Southbound													Eastbound										Westbound									
Start Time		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total																		
07:00 AM		0	0	0	3	3	0	0	0	0	0	1	6	0	0	0	7	0	7	1	0	8	0	7	1	0	8	18																	
07:15 AM		2	1	1	2	6	0	0	0	0	0	1	11	1	0	13	0	13	0	0	13	0	13	0	0	0	13	32																	
07:30 AM		2	2	1	0	5	0	1	0	0	1	0	14	1	0	15	0	15	0	2	11	0	9	2	0	0	11	32																	
07:45 AM		0	0	0	0	0	0	0	3	0	3	0	22	3	0	25	0	25	0	0	16	0	16	0	0	0	16	44																	
Total		4	3	2	5	14	0	1	3	0	4	2	53	5	0	60	0	45	3	0	48	0	45	3	0	0	48	126																	
08:00 AM		3	4	0	0	7	0	0	2	1	3	1	17	0	2	20	0	15	1	0	16	0	15	1	0	0	16	46																	
08:15 AM		0	1	0	1	2	0	0	1	0	1	2	14	1	0	17	0	15	0	0	15	0	15	0	0	0	15	35																	
08:30 AM		0	0	0	0	0	0	0	3	1	4	0	15	0	1	16	0	14	0	0	14	0	14	0	0	0	14	34																	
08:45 AM		2	1	2	0	5	0	0	3	0	3	2	12	0	1	15	0	25	1	0	26	0	25	1	0	0	26	49																	
Total		5	6	2	1	14	0	0	9	2	11	5	58	1	4	68	0	69	2	0	71	0	69	2	0	0	71	164																	
Grand Total		9	9	4	6	28	0	1	12	2	15	7	111	6	4	128	0	114	5	0	119	0	114	5	0	0	119	290																	
Approch %		32.1	32.1	14.3	21.4		0	6.7	80	13.3		5.5	86.7	4.7	3.1		0	95.8	4.2	0		0	95.8	4.2	0	0																			
Total %		3.1	3.1	1.4	2.1	9.7	0	0.3	4.1	0.7	5.2	2.4	38.3	2.1	1.4	44.1	0	39.3	1.7	0	41	0	39.3	1.7	0	0	41																		
Pass Veh.		9	9	4	6	28	0	1	12	2	15	5	108	6	4	123	0	110	5	0	115	0	110	5	0	0	115	281																	
% Pass Veh.		100	100	100	100	100	0	100	100	100	100	71.4	97.3	100	100	96.1	0	96.5	100	0	96.6	0	96.5	100	0	0	96.6	96.9																	
Trucks		0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	0	4	0	0	4	0	4	0	0	0	4	8																	
% Trucks		0	0	0	0	0	0	0	0	0	0	28.6	1.8	0	0	3.1	0	3.5	0	0	3.4	0	3.5	0	0	0	3.4	2.8																	
Bikes		0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1																	
% Bikes		0	0	0	0	0	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.3	0.3																	

	Northbound						Southbound						Eastbound						Westbound							
Start Time	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	3	4	0	0	7		0	0	2	1	3		1	17	0	2	20		0	15	1	0	16		46	
08:15 AM	0	1	0	1	2		0	0	1	0	1		2	14	1	0	17		0	15	0	0	15		35	
08:30 AM	0	0	0	0	0		0	0	0	3	4		0	15	0	1	16		0	14	0	0	14		34	
08:45 AM	2	1	2	0	5		0	0	3	0	3		2	12	0	1	15		0	25	1	0	26		49	
Total Volume	5	6	2	1	14		0	0	9	2	11		5	58	1	4	68		0	69	2	0	71		164	
% App. Total	35.7	42.9	14.3	7.1			0	0	81.8	18.2			7.4	85.3	1.5	5.9			0	97.2	2.8	0				
PHF	.417	.375	.250	.250	.500		.000	.000	.750	.500	.688		.625	.853	.250	.500	.850		.000	.690	.500	.000	.683		.837	
Pass Veh.	5	6	2	1	14		0	0	9	2	11		4	57	1	4	66		0	68	2	0	70		161	
% Pass Veh.	100	100	100	100	100		0	0	100	100	100		80.0	98.3	100	100	97.1		0	98.6	100	0	98.6		98.2	
Trucks	0	0	0	0	0		0	0	0	0	0		1	1	0	0	2		0	1	0	0	1		3	
% Trucks	0	0	0	0	0		0	0	0	0	0		20.0	1.7	0	0	2.9		0	1.4	0	0	1.4		1.8	
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM



	Northbound						Southbound						Eastbound						Westbound						
Start Time	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:00 PM																									
04:00 PM	2	51	4	2	59		5	39	7	0	51		6	1	2	0	9		2	4	13	0	19		138
04:15 PM	2	32	2	1	37		2	50	0	0	52		4	0	0	1	5		0	3	5	0	8		102
04:30 PM	0	26	0	1	27		2	41	5	1	49		4	2	1	0	7		3	1	12	0	16		99
04:45 PM	0	31	1	0	32		3	43	4	2	52		5	3	2	0	10		1	3	10	0	14		108
Total Volume	4	140	7	4	155		12	173	16	3	204		19	6	5	1	31		6	11	40	0	57		447
% App. Total	2.6	90.3	4.5	2.6			5.9	84.8	7.8	1.5			61.3	19.4	16.1	3.2			10.5	19.3	70.2	0			
PHF	.500	.686	.438	.500	.657		.600	.865	.571	.375	.981		.792	.500	.625	.250	.775		.500	.688	.769	.000	.750		.810
Pass Veh.	4	140	7	4	155		12	173	16	3	204		19	6	5	1	31		6	11	40	0	57		447
% Pass Veh.	100	100	100	100	100		100	100	100	100	100		100	100	100	100	100		100	100	100	0	100		100
Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0
% Trucks	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0
Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0

JULY 2010
TRAFFIC COUNTS

Groups Printed- Pass, Veh. - Trucks - Bikes

Start Time	Northbound						Southbound						Eastbound						Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	24	0	0	24		0	41	0	0	41		1	0	0	0	1		19	0	48	0	67	133
07:15 AM	0	30	0	2	32		0	55	0	0	55		1	0	3	0	4		8	0	48	0	56	147
07:30 AM	0	34	0	5	39		0	52	0	0	52		5	0	2	0	7		18	0	73	0	91	189
07:45 AM	0	44	0	0	44		0	59	0	0	59		9	0	0	0	9		27	0	68	0	95	207
Total	0	132	0	7	139		0	207	0	0	207		16	0	5	0	21		72	0	237	0	309	676
08:00 AM	0	30	0	0	30		0	54	0	0	54		7	0	0	0	7		26	0	50	1	77	168
08:15 AM	0	30	0	0	30		0	61	0	0	61		4	0	1	2	7		26	0	72	0	98	196
08:30 AM	0	21	0	2	23		0	70	0	0	70		6	0	0	2	8		32	0	48	0	80	181
08:45 AM	0	35	0	1	36		0	65	0	0	65		3	0	1	2	6		25	0	40	0	65	172
Total	0	116	0	3	119		0	250	0	0	250		20	0	2	6	28		109	0	210	1	320	717
*** BREAK ***																								
04:00 PM	0	42	0	2	44		0	106	0	0	107		7	0	3	4	14		53	0	77	0	130	295
04:15 PM	0	40	0	0	40		0	128	0	0	128		9	0	1	1	11		45	0	73	1	119	298
04:30 PM	0	46	0	0	46		0	140	0	1	141		4	0	7	5	16		55	0	61	0	116	319
04:45 PM	0	51	0	1	52		0	134	0	0	134		2	0	2	0	4		42	0	65	0	107	297
Total	0	179	0	3	182		0	508	0	2	510		22	0	13	10	45		195	0	276	1	472	1209
05:00 PM	0	45	0	0	45		0	133	0	0	133		10	0	4	1	15		48	0	64	0	112	305
05:15 PM	0	37	0	1	38		0	145	0	1	146		3	0	3	1	7		41	0	70	0	111	302
05:30 PM	0	34	0	1	35		0	116	0	0	116		8	0	0	11	19		42	0	54	0	96	266
05:45 PM	0	35	0	4	39		0	106	0	0	106		3	0	4	3	10		36	0	54	0	90	245
Total	0	151	0	6	157		0	500	0	1	501		24	0	11	16	51		167	0	242	0	409	1118
Grand Total	0	578	0	19	597		0	1465	0	3	1468		82	0	31	32	145		543	0	965	2	1510	3720
Approach %	0	96.8	0	3.2			0	99.8	0	0.2			56.6	0	21.4	22.1			36	0	63.9	0.1		
Total %	0	15.5	0	0.5	16		0	39.4	0	0.1	39.5		2.2	0	0.8	0.9	3.9		14.6	0	25.9	0.1	40.6	
Pass. Veh.	0	571	0	17	588		0	1429	0	1	1430		82	0	31	26	139		540	0	939	2	1481	3638
% Pass. Veh.	0	98.8	0	89.5	98.5		0	97.5	0	33.3	97.4		100	0	100	81.2	95.9		99.4	0	97.3	100	98.1	97.8
Trucks	0	7	0	0	7		0	36	0	0	36		0	0	0	0	0		3	0	26	0	29	72
% Trucks	0	1.2	0	0	1.2		0	2.5	0	0	2.5		0	0	0	0	0		0.6	0	2.7	0	1.9	1.9
Bikes	0	0	0	2	2		0	0	0	2	2		0	0	0	6	6		0	0	0	0	0	10
% Bikes	0	0	0	10.5	0.3		0	0	0	66.7	0.1		0	0	0	18.8	4.1		0	0	0	0	0	0.3



Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Northbound					Southbound					Eastbound					Westbound				
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total			
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:30 AM																			
07:30 AM	0	34	0	5	39	0	52	0	0	52	5	0	2	0	7	18			
07:45 AM	0	44	0	0	44	0	59	0	0	59	9	0	0	0	9	27			
08:00 AM	0	30	0	0	30	0	54	0	0	54	7	0	0	0	7	26			
08:15 AM	0	30	0	0	30	0	61	0	0	61	4	0	1	2	7	26			
Total Volume	0	138	0	5	143	0	226	0	0	226	25	0	3	2	30	97			
% App. Total	0	96.5	0	3.5	0	0	100	0	0	0	83.3	0	10	6.7	26.9	26.9			
PHF	.000	.784	.000	.250	.813	.000	.926	.000	.000	.926	.694	.000	.375	.250	.833	.898			
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:30 PM																			
04:30 PM	0	46	0	0	46	0	140	0	1	141	4	0	7	5	16	55			
04:45 PM	0	51	0	1	52	0	134	0	0	134	2	0	2	0	4	42			
05:00 PM	0	45	0	0	45	0	133	0	0	133	10	0	4	1	15	48			
05:15 PM	0	37	0	1	38	0	145	0	1	146	3	0	3	1	7	41			
Total Volume	0	179	0	2	181	0	552	0	2	554	19	0	16	7	42	186			
% App. Total	0	98.9	0	1.1	0	0	99.6	0	0.4	0	45.2	0	38.1	16.7	41.7	41.7			
PHF	.000	.877	.000	.500	.870	.000	.957	.000	.000	.949	.475	.000	.571	.350	.656	.845			

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : Front-State
Site Code : 00001234
Start Date : 7/8/2010
Page No : 1

Groups Printed- Pass. Veh. - Trucks

Start Time	State Northbound						State Southbound						Front Eastbound						Front Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	16	0	0	16		0	40	13	0	53		0	0	0	0	0		0	45	31	0	76	145
07:15 AM	0	25	0	3	28		0	43	11	0	54		0	0	0	1	1		1	49	60	0	110	193
07:30 AM	0	25	0	2	27		0	71	22	6	99		0	0	0	0	0		0	70	59	0	129	255
07:45 AM	0	38	0	0	38		0	70	29	6	105		0	0	0	0	0		1	51	84	0	136	279
Total	0	104	0	5	109		0	224	75	12	311		0	0	0	1	1		2	215	234	0	451	872
08:00 AM	0	23	0	0	23		0	73	26	0	99		0	0	0	0	0		0	51	52	0	103	225
08:15 AM	0	32	0	1	33		0	59	21	4	84		0	0	0	0	0		5	51	62	0	118	235
08:30 AM	0	13	0	0	13		0	67	36	0	103		0	0	0	0	0		2	51	57	0	110	226
08:45 AM	0	27	0	4	31		0	85	29	0	114		0	0	0	0	0		2	54	54	2	112	257
Total	0	95	0	5	100		0	284	112	4	400		0	0	0	0	0		9	207	225	2	443	943
*** BREAK ***																								
04:00 PM	0	33	0	2	35		0	103	48	1	152		0	0	0	0	0		0	74	114	1	196	383
04:15 PM	1	31	0	2	34		0	99	57	1	157		0	0	0	0	0		8	63	101	0	172	363
04:30 PM	0	52	0	0	52		0	99	61	2	162		0	0	0	0	0		3	71	108	0	182	396
04:45 PM	1	45	0	0	46		0	112	51	1	164		0	0	0	0	0		7	70	85	0	162	372
Total	2	161	0	4	167		0	413	217	5	635		0	0	0	0	0		25	278	408	1	712	1514
05:00 PM	0	45	0	1	46		0	101	44	3	148		0	0	0	0	0		2	88	119	0	209	403
05:15 PM	0	37	0	2	39		0	128	58	5	191		0	0	0	0	0		2	60	131	0	193	423
05:30 PM	0	50	0	0	50		0	101	60	5	166		0	0	0	0	0		3	58	114	0	175	391
05:45 PM	0	40	0	3	43		0	68	32	3	103		0	0	0	0	0		8	60	124	0	192	338
Total	0	172	0	6	178		0	398	194	16	608		0	0	0	0	0		15	266	488	0	769	1555
Grand Total	2	532	0	20	554		0	1319	598	37	1954		0	0	0	1	1		51	966	1355	3	2375	4884
Approch %	0.4	96	0	3.6			0	67.5	30.6	1.9			0	0	0	100			2.1	40.7	57.1	0.1		
Total %		10.9	0	0.4	11.3		0	27	12.2	0.8	40		0	0	0	0	0		1	19.8	27.7	0.1	48.6	
Pass. Veh.	2	530	0	20	552		0	1310	594	37	1941		0	0	0	1	1		51	931	1351	3	2336	4830
% Pass. Veh.	100	99.6	0	100	99.6		0	99.3	99.3	100	99.3		0	0	0	100	100		100	96.4	99.7	100	98.4	98.9
Trucks	0	2	0	0	2		0	9	4	0	13		0	0	0	0	0		0	35	4	0	39	54
% Trucks	0	0.4	0	0	0.4		0	0.7	0.7	0	0.7		0	0	0	0	0		0	3.6	0.3	0	1.6	1.1

Start Time	State Northbound				State Southbound				Front Eastbound				Front Westbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	0	25	0	2	27	0	71	22	6	99	0	0	0	0	0	255
07:45 AM	0	38	0	0	38	0	70	29	6	105	0	0	0	0	0	279
08:00 AM	0	23	0	0	23	0	73	26	0	99	0	0	0	0	0	225
08:15 AM	0	32	0	1	33	0	59	21	4	84	0	0	0	0	0	235
Total Volume	0	118	0	3	121	0	273	98	16	387	0	0	0	0	0	994
% App. Total	0	97.5	0	2.5		0	70.5	25.3	4.1		0	0	0	0	0	
PHF	.000	.776	.000	.375	.796	.000	.935	.845	.667	.921	.000	.000	.000	.000	.000	.891
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	0	52	0	0	52	0	99	61	2	162	0	0	0	0	0	396
04:45 PM	1	45	0	0	46	0	112	51	1	164	0	0	0	0	0	372
05:00 PM	0	45	0	1	46	0	101	44	3	148	0	0	0	0	0	403
05:15 PM	0	37	0	2	39	0	128	58	5	191	0	0	0	0	0	423
Total Volume	1	179	0	3	183	0	440	214	11	665	0	0	0	0	0	1594
% App. Total	0.5	97.8	0	1.6		0	66.2	32.2	1.7		0	0	0	0	0	
PHF	.250	.861	.000	.375	.880	.000	.859	.877	.550	.870	.000	.000	.000	.000	.000	.942



*** BREAK ***

Groups Printed- Pass. Veh. - Trucks - Bikes																						
Wilson					Southbound					Front Eastbound					Front Westbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
07:00 AM	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	61	0	0	0	61	80
07:15 AM	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	80	109
07:30 AM	31	0	0	0	31	0	0	0	0	1	0	0	0	0	0	0	97	0	0	1	98	130
07:45 AM	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	104	0	0	0	104	133
Total	108	0	0	0	108	0	0	0	0	1	1	0	0	0	0	0	342	0	0	1	343	452
08:00 AM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	74	0	0	0	74	107
08:15 AM	34	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	82	0	0	0	82	116
08:30 AM	28	0	0	0	28	0	0	0	0	1	1	0	0	0	0	0	76	0	0	0	76	105
08:45 AM	30	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	83	0	0	0	83	113
Total	125	0	0	0	125	0	0	0	0	1	1	0	0	0	0	0	315	0	0	0	315	441
*** BREAK ***																						
04:00 PM	73	0	0	0	73	0	0	0	0	1	1	0	0	0	0	1	131	0	0	0	131	206
04:15 PM	60	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	110	0	0	0	110	170
04:30 PM	67	0	0	1	68	0	0	0	0	0	0	0	0	0	0	0	107	0	0	0	107	175
04:45 PM	58	0	0	5	63	0	0	0	0	1	1	0	0	0	1	1	115	0	0	0	115	180
Total	258	0	0	6	264	0	0	0	0	2	2	0	0	0	2	2	463	0	0	0	463	731
05:00 PM	62	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	125	0	0	0	125	187
05:15 PM	58	0	0	1	59	0	0	0	0	0	0	0	0	0	0	0	132	0	0	0	132	191
05:30 PM	51	0	0	0	51	0	0	0	0	0	0	0	0	0	0	1	121	0	0	0	122	173
05:45 PM	70	0	0	3	73	0	0	0	0	0	0	0	0	0	4	4	97	0	0	0	97	174
Total	241	0	0	4	245	0	0	0	0	0	0	0	0	0	4	4	475	0	0	0	476	725
Grand Total	732	0	0	10	742	0	0	0	0	4	4	0	0	0	6	6	1 1595	0	0	1	1597	2349
Appreh %	98.7	0	0	1.3		0	0	0	0	100		0	0	0	100		0.1 99.9	0	0	0.1		
Total %	31.2	0	0	0.4	31.6	0	0	0	0	0.2	0.2	0	0	0	0.3	0.3	67.9	0	0	0	68	
Pass. Veh.	732	0	0	10	742	0	0	0	0	4	4	0	0	0	6	6	1 1595	0	0	1	1597	2349
% Pass. Veh.	100	0	0	100	100	0	0	0	0	100	100	0	0	0	100	100	100	100	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Wilson Northbound					Southbound					Front Eastbound					Front Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	31	0	0	0	31	0	0	0	1	1	0	0	0	0	0	0	97	0	1	98	130
07:45 AM	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	104	0	0	104	133
08:00 AM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	74	0	0	74	107
08:15 AM	34	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	82	0	0	82	116
Total Volume	127	0	0	0	127	0	0	0	1	1	0	0	0	0	0	0	357	0	1	358	486
% App. Total	100	0	0	0		0	0	0	100		0	0	0	0	0	0	99.7	0	0.3		
PHF	.934	.000	.000	.000	.934	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.858	.000	.250	.861	.914
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	67	0	0	1	68	0	0	0	0	0	0	0	0	0	0	0	107	0	0	107	175
04:45 PM	58	0	0	5	63	0	0	0	1	1	0	0	0	1	1	0	115	0	0	115	180
05:00 PM	62	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	125	0	0	125	187
05:15 PM	58	0	0	1	59	0	0	0	0	0	0	0	0	0	0	0	132	0	0	132	191
Total Volume	245	0	0	7	252	0	0	0	1	1	0	0	0	1	1	0	479	0	0	479	733
% App. Total	97.2	0	0	2.8		0	0	0	100		0	0	0	100		0	100	0	0		
PHF	.914	.000	.000	.350	.926	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.000	.907	.000	.000	.907	.959

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : First-Petroleum
Site Code : 00000002
Start Date : 7/8/2010
Page No : 1

Groups Printed- Pass, Veh. - Trucks - Bikes

Start Time	Petroleum Northbound						Petroleum Southbound						1st Eastbound						1st Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	4	1	0	5		21	5	17	0	43		28	19	1	1	49		0	0	0	0	0	97
07:15 AM	0	2	1	0	3		41	5	26	0	72		19	34	1	0	54		0	0	0	0	0	129
07:30 AM	0	5	1	1	7		31	2	42	0	75		22	23	1	4	50		0	0	0	0	0	132
07:45 AM	2	3	1	1	7		37	11	50	0	98		35	35	1	2	73		0	0	0	0	0	178
Total	2	14	4	2	22		130	23	135	0	288		104	111	4	7	226		0	0	0	0	0	536
08:00 AM	0	4	0	3	7		44	8	35	0	87		30	35	0	1	66		0	0	0	0	0	160
08:15 AM	1	5	0	2	8		23	4	34	1	62		20	31	1	2	54		0	0	0	0	0	124
08:30 AM	0	5	0	0	5		42	16	46	0	104		28	19	0	2	49		0	0	0	0	0	158
08:45 AM	0	1	1	6	8		42	4	56	2	104		19	28	0	2	49		0	0	0	4	4	165
Total	1	15	1	11	28		151	32	171	3	357		97	113	1	7	218		0	0	0	4	4	607
*** BREAK ***																								
04:00 PM	2	3	0	1	6		65	18	78	0	161		29	22	0	0	51		0	0	0	3	3	221
04:15 PM	1	6	1	3	11		73	13	81	0	167		31	32	1	3	67		0	0	0	0	0	245
04:30 PM	0	8	4	3	15		73	16	73	0	162		43	36	2	0	81		0	0	0	3	3	261
04:45 PM	0	6	0	2	8		77	17	75	1	170		23	41	0	2	66		0	0	0	1	1	245
Total	3	23	5	9	40		288	64	307	1	660		126	131	3	5	265		0	0	0	7	7	972
05:00 PM	2	7	0	0	9		67	11	70	0	148		44	37	4	2	87		0	0	0	0	0	244
05:15 PM	1	6	0	0	7		59	14	90	0	163		38	38	1	1	78		0	0	0	0	0	248
05:30 PM	0	5	0	0	5		67	18	84	0	169		25	35	0	0	60		0	0	0	0	0	234
05:45 PM	0	3	1	0	4		64	9	55	0	128		21	30	2	0	53		0	0	0	0	0	185
Total	3	21	1	0	25		257	52	299	0	608		128	140	7	3	278		0	0	0	0	0	911
Grand Total	9	73	11	22	115		826	171	912	4	1913		455	495	15	22	987		0	0	0	11	11	3026
Approach %	7.8	63.5	9.6	19.1			43.2	8.9	47.7	0.2			46.1	50.2	1.5	2.2			0	0	0	100		
Total %	0.3	2.4	0.4	0.7	3.8		27.3	5.7	30.1	0.1	63.2		15	16.4	0.5	0.7	32.6		0	0	0	0.4	0.4	
Pass. Veh.	9	73	11	22	115		775	169	886	4	1834		445	482	15	21	963		0	0	0	9	9	2921
% Pass. Veh.	100	100	100	100	100		93.8	98.8	97.1	100	95.9		97.8	97.4	100	95.5	97.6		0	0	0	81.8	81.8	96.5
Trucks	0	0	0	0	0		51	2	26	0	79		10	12	0	0	22		0	0	0	0	0	101
% Trucks	0	0	0	0	0		6.2	1.2	2.9	0	4.1		2.2	2.4	0	0	2.2		0	0	0	0	0	3.3
Bikes	0	0	0	0	0		0	0	0	0	0		0	1	0	1	2		0	0	0	2	2	4
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0.2	0	4.5	0.2		0	0	0	18.2	18.2	0.1

	Petroleum Northbound					Petroleum Southbound					1st Eastbound					1st Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	3	1	1	7	37	11	50	0	98	35	35	1	2	73	0	0	0	0	0	178
08:00 AM	0	4	0	3	7	44	8	35	0	87	30	35	0	1	66	0	0	0	0	0	160
08:15 AM	1	5	0	2	8	23	4	34	1	62	20	31	1	2	54	0	0	0	0	0	124
08:30 AM	0	5	0	0	5	42	16	46	0	104	28	19	0	2	49	0	0	0	0	0	158
Total Volume	3	17	1	6	27	146	39	165	1	351	113	120	2	7	242	0	0	0	0	0	620
% App. Total	11.1	63	3.7	22.2		41.6	11.1	47	0.3		46.7	49.6	0.8	2.9		0	0	0	0	0	
PHF	.375	.850	.250	.500	.844	.830	.609	.825	.250	.844	.807	.857	.500	.875	.829	.000	.000	.000	.000	.000	.871

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	8	4	3	15	73	16	73	0	162	43	36	2	0	81	0	0	0	3	3	261
04:45 PM	0	6	0	2	8	77	17	75	1	170	23	41	0	2	66	0	0	0	1	1	245
05:00 PM	2	7	0	0	9	67	11	70	0	148	44	37	4	2	87	0	0	0	0	0	244
05:15 PM	1	6	0	0	7	59	14	90	0	163	38	38	1	1	78	0	0	0	0	0	248
Total Volume	3	27	4	5	39	276	58	308	1	643	148	152	7	5	312	0	0	0	4	4	998
% App. Total	7.7	69.2	10.3	12.8		42.9	9	47.9	0.2		47.4	48.7	2.2	1.6		0	0	0	100		
PHF	.375	.844	.250	.417	.650	.896	.853	.856	.250	.946	.841	.927	.438	.625	.897	.000	.000	.000	.333	.333	.956

Groups Printed- Pass. Veh. - Trucks - Bikes																											
		Central										1st										1st					
		Northbound					Southbound					Eastbound					Westbound										
Start Time		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total					
07:00 AM		0	13	10	0	23	1	6	0	1	8	2	40	1	0	43	0	0	0	1	1	75					
07:15 AM		0	12	11	0	23	4	6	0	0	10	3	70	3	1	77	0	0	0	0	0	110					
07:30 AM		0	15	13	1	29	2	7	0	0	9	1	47	2	2	52	0	0	0	1	1	91					
07:45 AM		0	10	15	1	26	4	4	0	0	8	5	68	4	1	78	0	0	0	1	1	113					
Total		0	50	49	2	101	11	23	0	1	35	11	225	10	4	250	0	0	0	3	3	389					
08:00 AM		0	4	16	0	20	2	4	0	2	8	4	73	2	2	81	0	0	0	0	0	109					
08:15 AM		0	18	13	4	35	7	7	0	2	16	3	53	1	3	60	0	0	0	1	1	112					
08:30 AM		0	8	12	2	22	3	13	0	1	17	5	48	4	1	58	0	0	0	0	0	97					
08:45 AM		0	8	17	3	28	9	10	0	3	22	2	59	1	2	64	0	0	0	0	0	114					
Total		0	38	58	9	105	21	34	0	8	63	14	233	8	8	263	0	0	0	1	1	432					
*** BREAK ***																											
04:00 PM		0	7	20	4	31	13	19	0	1	33	5	83	6	4	98	0	0	0	2	2	164					
04:15 PM		0	13	15	4	32	19	19	0	3	41	7	82	14	0	103	0	0	0	1	1	177					
04:30 PM		0	12	27	3	42	6	27	0	2	35	2	96	11	1	110	0	0	0	2	2	189					
04:45 PM		0	6	24	5	35	13	20	0	2	35	5	103	16	0	124	0	0	0	1	1	195					
Total		0	38	86	16	140	51	85	0	8	144	19	364	47	5	435	0	0	0	6	6	725					
05:00 PM		0	9	32	6	47	11	27	0	0	38	5	95	8	5	113	0	0	0	0	0	198					
05:15 PM		0	13	18	4	35	8	32	0	0	40	3	84	7	3	97	0	0	0	0	0	172					
05:30 PM		0	8	21	0	29	6	21	0	0	27	4	90	7	4	105	0	0	0	1	1	162					
05:45 PM		0	11	18	0	29	5	14	0	0	19	3	83	13	3	102	0	0	0	3	3	153					
Total		0	41	89	10	140	30	94	0	0	124	15	352	35	15	417	0	0	0	4	4	685					
Grand Total		0	167	282	37	486	113	236	0	17	366	59	1174	100	32	1365	0	0	0	14	14	2231					
Approch %		0	34.4	58	7.6		30.9	64.5	0	4.6		4.3	86	7.3	2.3		0	0	0	100							
Total %		0	7.5	12.6	1.7	21.8	5.1	10.6	0	0.8	16.4	2.6	52.6	4.5	1.4	61.2	0	0	0	0.6	0.6						
Pass. Veh.		0	167	282	32	481	113	236	0	16	365	59	1140	100	32	1331	0	0	0	14	14	2191					
% Pass. Veh.		0	100	100	86.5	99	100	100	0	94.1	99.7	100	97.1	100	100	97.5	0	0	0	100	100	98.2					
Trucks		0	0	0	0	0	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	34					
% Trucks		0	0	0	0	0	0	0	0	0	0	0	2.9	0	0	2.5	0	0	0	0	0	1.5					
Bikes		0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	6					
% Bikes		0	0	0	13.5	1	0	0	0	5.9	0.3	0	0	0	0	0	0	0	0	0	0	0.3					

JOHNSON, MIRMIAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : First-Central
Site Code : 00000003
Start Date : 7/8/2010
Page No : 2

Start Time	Central Northbound				Central Southbound				1st Eastbound				1st Westbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	0	4	16	0	20	2	4	0	2	8	4	73	2	2	81	109
08:15 AM	0	18	13	4	35	7	7	0	2	16	3	53	1	3	60	112
08:30 AM	0	8	12	2	22	3	13	0	1	17	5	48	4	1	58	97
08:45 AM	0	8	17	3	28	9	10	0	3	22	2	59	1	2	64	114
Total Volume	0	38	58	9	105	21	34	0	8	63	14	233	8	8	263	432
% App. Total	0	36.2	55.2	8.6		33.3	54	0	12.7		5.3	88.6	3	3		
PHF	.000	.528	.853	.563	.750	.583	.654	.000	.667	.716	.700	.798	.500	.667	.812	.947

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:15 PM																
04:15 PM	0	13	15	4	32	19	19	0	3	41	7	82	14	0	103	177
04:30 PM	0	12	27	3	42	6	27	0	2	35	2	96	11	1	110	189
04:45 PM	0	6	24	5	35	13	20	0	2	35	5	103	16	0	124	195
05:00 PM	0	9	32	6	47	11	27	0	0	38	5	95	8	5	113	198
Total Volume	0	40	98	18	156	49	93	0	7	149	19	376	49	6	450	759
% App. Total	0	25.6	62.8	11.5		32.9	62.4	0	4.7		4.2	83.6	10.9	1.3		
PHF	.000	.769	.766	.750	.830	.645	.861	.000	.583	.909	.679	.913	.766	.300	.907	.958

Groups Printed- Pass. Veh. - Trucks - Bikes

	State Northbound						State Southbound						1st Eastbound						1st Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total			
07:00 AM	0	0	0	0	0	37	1	0	0	38	16	31	1	0	48	0	0	0	0	0	86			
07:15 AM	0	0	0	0	0	43	1	0	0	44	32	55	3	1	91	0	0	0	2	2	137			
07:30 AM	0	0	0	1	1	68	1	0	0	69	23	40	0	4	67	0	0	0	1	1	138			
07:45 AM	0	0	0	1	1	69	1	0	0	70	35	47	3	0	85	0	0	0	1	1	157			
Total	0	0	0	2	2	217	4	0	0	221	106	173	7	5	291	0	0	0	4	4	518			
08:00 AM	0	0	0	2	2	71	0	0	1	72	25	66	2	1	94	0	0	0	0	0	168			
08:15 AM	0	0	0	1	1	55	5	0	2	62	33	34	1	2	70	0	1	0	3	4	137			
08:30 AM	0	0	0	1	1	62	5	0	1	68	13	44	3	1	61	0	0	0	0	0	130			
08:45 AM	0	0	0	2	2	84	5	0	0	89	30	54	3	0	87	0	0	0	3	3	181			
Total	0	0	0	6	6	272	15	0	4	291	101	198	9	4	312	0	1	0	6	7	616			
*** BREAK ***																								
04:00 PM	0	0	0	2	2	103	7	0	1	111	30	94	4	0	128	0	0	0	1	1	242			
04:15 PM	0	0	0	0	0	101	11	0	0	112	31	81	6	0	118	0	0	0	0	0	230			
04:30 PM	0	0	0	0	0	100	10	0	2	112	56	71	8	7	142	0	1	0	4	5	259			
04:45 PM	0	0	0	0	0	99	8	0	0	107	46	94	4	0	144	0	0	0	0	0	251			
Total	0	0	0	2	2	403	36	0	3	442	163	340	22	7	532	0	1	0	5	6	982			
05:00 PM	0	0	0	2	2	109	12	0	1	122	45	94	4	3	146	0	0	0	0	0	270			
05:15 PM	0	1	0	1	2	110	9	0	4	123	37	74	3	2	116	0	0	0	1	1	242			
05:30 PM	0	0	0	3	3	82	5	0	4	91	42	67	5	0	114	0	0	0	2	2	210			
05:45 PM	0	1	0	0	1	77	5	0	1	83	43	64	4	1	112	0	1	0	0	1	197			
Total	0	2	0	6	8	378	31	0	10	419	167	299	16	6	488	0	1	0	3	4	919			
Grand Total	0	2	0	16	18	1270	86	0	17	1373	537	1010	54	22	1623	0	3	0	18	21	3035			
Approch %	0	11.1	0	88.9		92.5	6.3	0	1.2		33.1	62.2	3.3	1.4		0	14.3	0	85.7					
Total %	0	0.1	0	0.5	0.6	41.8	2.8	0	0.6	45.2	17.7	33.3	1.8	0.7	53.5	0	0.1	0	0.6	0.7				
Pass. Veh.	0	0	0	16	16	1247	84	0	15	1346	534	966	54	21	1575	0	0	0	16	16	2953			
% Pass. Veh.	0	0	0	100	88.9	98.2	97.7	0	88.2	98	99.4	95.6	100	95.5	97	0	0	0	88.9	76.2	97.3			
Trucks	0	0	0	0	0	22	0	0	0	22	2	41	0	0	43	0	0	0	1	1	66			
% Trucks	0	0	0	0	0	1.7	0	0	0	1.6	0.4	4.1	0	0	2.6	0	0	0	5.6	4.8	2.2			
Bikes	0	2	0	0	2	1	2	0	2	5	1	3	0	1	5	0	3	0	1	4	16			
% Bikes	0	100	0	0	11.1	0.1	2.3	0	11.8	0.4	0.2	0.3	0	4.5	0.3	0	100	0	5.6	19	0.5			

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : First-State
Site Code : 00500002
Start Date : 7/8/2010
Page No : 2

	State Northbound					State Southbound					1st Eastbound					1st Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	2	2	71	0	0	1	72	25	66	2	1	94	0	0	0	0	0	168
08:15 AM	0	0	0	1	1	55	5	0	2	62	33	34	1	2	70	0	1	0	3	4	137
08:30 AM	0	0	0	1	1	62	5	0	1	68	13	44	3	1	61	0	0	0	0	0	130
08:45 AM	0	0	0	2	2	84	5	0	0	89	30	54	3	0	87	0	0	0	3	3	181
Total Volume	0	0	0	6	6	272	15	0	4	291	101	198	9	4	312	0	1	0	6	7	616
% App. Total	0	0	0	100	.750	93.5	5.2	0	1.4	.817	32.4	63.5	2.9	1.3	.830	0	14.3	0	85.7	.438	.851
PHF	.000	.000	.000	.750	.750	.810	.750	.000	.500	.817	.765	.750	.750	.500	.830	.000	.250	.000	.500	.438	.851
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	100	10	0	2	112	56	71	8	7	142	0	1	0	4	5	259
04:45 PM	0	0	0	0	0	99	8	0	0	107	46	94	4	0	144	0	0	0	0	0	251
05:00 PM	0	0	0	2	2	109	12	0	1	122	45	94	4	3	146	0	0	0	0	0	270
05:15 PM	0	1	0	1	2	110	9	0	4	123	37	74	3	2	116	0	0	0	1	1	242
Total Volume	0	1	0	3	4	418	39	0	7	464	184	333	19	12	548	0	1	0	5	6	1022
% App. Total	0	.25	0	.75	.500	90.1	8.4	0	1.5	.943	33.6	60.8	3.5	2.2	.938	0	16.7	0	83.3	.300	.946
PHF	.000	.250	.000	.375	.500	.950	.813	.000	.438	.943	.821	.886	.594	.429	.938	.000	.250	.000	.313	.300	.946

Groups Printed- Cars - Trucks - Bikes

Start Time	Wilson Northbound						Wilson Southbound						Eastbound						Westbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	19	1	0	20		0	0	0	0	0		0	48	25	0	73		0	0	0	0	0	93
07:15 AM	0	27	3	0	30		0	0	0	0	0		1	71	24	0	96		0	0	0	0	0	126
07:30 AM	0	31	0	2	33		0	0	0	0	0		0	71	36	0	107		0	0	0	1	1	141
07:45 AM	0	25	0	1	26		0	0	0	0	0		3	80	29	1	113		0	0	0	0	0	139
Total	0	102	4	3	109		0	0	0	0	0		4	270	114	1	389		0	0	0	1	1	499
08:00 AM	0	37	5	0	42		0	0	0	0	0		1	100	39	2	142		0	0	0	0	0	184
08:15 AM	0	28	0	1	29		0	0	0	0	0		3	62	21	1	87		0	0	0	0	0	116
08:30 AM	0	28	0	0	28		0	0	0	0	0		2	81	28	0	111		0	0	0	0	0	139
08:45 AM	0	27	2	1	30		0	0	0	0	0		1	91	43	0	135		0	0	0	0	0	165
Total	0	120	7	2	129		0	0	0	0	0		7	334	131	3	475		0	0	0	0	0	604
*** BREAK ***																								
04:00 PM	0	77	2	0	79		0	0	0	0	2		8	127	63	0	198		0	0	0	1	1	280
04:15 PM	0	53	0	0	53		0	0	0	0	0		3	116	61	0	180		0	0	0	0	0	233
04:30 PM	0	68	2	4	74		0	0	0	0	0		3	116	48	0	167		0	0	0	0	0	241
04:45 PM	0	63	2	5	70		0	0	0	0	3		2	131	58	0	191		0	0	0	1	1	265
Total	0	261	6	9	276		0	0	0	0	5		16	490	230	0	736		0	0	0	2	2	1019
05:00 PM	0	71	1	0	72		0	0	0	0	0		4	122	71	0	197		0	0	0	0	0	269
05:15 PM	0	57	1	1	59		0	0	0	0	2		3	111	67	2	183		0	0	0	0	0	244
05:30 PM	0	54	1	0	55		0	0	0	0	0		6	97	51	0	154		0	0	0	0	0	209
05:45 PM	0	64	1	5	70		0	0	0	0	0		4	77	56	0	137		0	0	0	0	0	207
Total	0	246	4	6	256		0	0	0	0	2		17	407	245	2	671		0	0	0	0	0	929
Grand Total	0	729	21	20	770		0	0	0	0	7		44	1501	720	6	2271		0	0	0	3	3	3051
Approach %	0	94.7	2.7	2.6			0	0	0	0	100		1.9	66.1	31.7	0.3			0	0	0	100		
Total %	0	23.9	0.7	0.7	25.2		0	0	0	0	0.2		1.4	49.2	23.6	0.2	74.4		0	0	0	0.1	0.1	
% Cars	0	720	21	20	761		0	0	0	0	7		43	1452	706	6	2207		0	0	0	3	3	2978
% Trucks	0	98.8	100	100	98.8		0	0	0	0	100		97.7	96.7	98.1	100	97.2		0	0	0	100	100	97.6
% Bikes	0	9	0	0	9		0	0	0	0	0		1	49	14	0	64		0	0	0	0	0	73
% Trucks	0	1.2	0	0	1.2		0	0	0	0	0		2.3	3.3	1.9	0	2.8		0	0	0	0	0	2.4
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
% Bikes	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : First-Wilson
Site Code : 00000007
Start Date : 7/8/2010
Page No : 2

Start Time	Wilson Northbound					Wilson Southbound					1st Eastbound					1st Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	37	5	0	42	0	0	0	0	0	1	100	39	2	142	0	0	0	0	0	184
08:15 AM	0	28	0	1	29	0	0	0	0	0	3	62	21	1	87	0	0	0	0	0	116
08:30 AM	0	28	0	0	28	0	0	0	0	0	2	81	28	0	111	0	0	0	0	0	139
08:45 AM	0	27	2	1	30	0	0	0	0	0	1	91	43	0	135	0	0	0	0	0	165
Total Volume	0	120	7	2	129	0	0	0	0	0	7	334	131	3	475	0	0	0	0	0	604
% App. Total	0	93	5.4	1.6		0	0	0	0	0	1.5	70.3	27.6	0.6		0	0	0	0	0	
PHF	.000	.811	.350	.500	.768	.000	.000	.000	.000	.000	.583	.835	.762	.375	.836	.000	.000	.000	.000	.000	.821

Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	77	2	0	79	0	0	0	2	2	8	127	63	0	198	0	0	0	1	1	280
04:15 PM	0	53	0	0	53	0	0	0	0	0	3	116	61	0	180	0	0	0	0	0	233
04:30 PM	0	68	2	4	74	0	0	0	0	0	3	116	48	0	167	0	0	0	0	0	241
04:45 PM	0	63	2	5	70	0	0	0	3	3	2	131	58	0	191	0	0	0	1	1	265
Total Volume	0	261	6	9	276	0	0	0	5	5	16	490	230	0	736	0	0	0	2	2	1019
% App. Total	0	94.6	2.2	3.3		0	0	0	100		2.2	66.6	31.2	0		0	0	0	100		
PHF	.000	.847	.750	.450	.873	.000	.000	.000	.417	.417	.500	.935	.913	.000	.929	.000	.000	.000	.500	.500	.910

JOHNSON, MIRMIRAN & THOMPSON, INC.
1550 Coraopolis Heights Road, Suite 440
Moon Township, PA 15108

File Name : Pumphouse
Site Code : 00000008
Start Date : 7/8/2010
Page No : 1

Groups Printed- Pass, Veh. - Trucks - Bikes																																					
Route 62 Northbound													Route 62 Southbound													Parking Lot Eastbound						Pumphouse Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total											
07:00 AM	0	68	0	0	68	0	56	0	0	56	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	125										
07:15 AM	0	87	0	0	87	0	64	0	0	64	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	152										
07:30 AM	0	105	0	0	105	0	84	0	0	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189										
07:45 AM	0	116	0	0	116	0	94	1	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211										
Total	0	376	0	0	376	0	298	1	0	299	0	0	0	0	0	0	1	0	1	0	2	1	0	1	0	2	677										
08:00 AM	0	78	0	0	78	2	99	0	0	101	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	180										
08:15 AM	0	73	0	0	73	0	81	0	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154										
08:30 AM	0	77	0	0	77	0	84	0	0	84	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	162											
08:45 AM	0	86	1	0	87	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187										
Total	0	314	1	0	315	2	364	0	0	366	1	0	0	0	0	1	0	0	1	0	1	0	0	1	0	1	683										
*** BREAK ***																																					
04:00 PM	0	132	0	0	132	2	142	0	0	144	0	0	0	0	0	0	1	0	6	0	0	0	0	6	0	7	283										
04:15 PM	0	126	0	0	126	3	119	0	0	122	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	3	251										
04:30 PM	0	119	1	0	120	0	139	0	0	139	0	0	0	0	0	0	2	0	1	0	3	2	0	1	0	3	262										
04:45 PM	0	136	0	0	136	3	131	0	0	134	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	271										
Total	0	513	1	0	514	8	531	0	0	539	0	0	0	0	0	0	4	0	10	0	0	4	0	10	0	14	1067										
05:00 PM	0	132	0	0	132	5	139	0	0	144	0	0	0	0	0	0	1	0	2	0	0	1	0	2	0	3	279										
05:15 PM	0	149	0	0	149	1	130	0	0	131	0	0	0	0	0	0	1	0	2	0	0	1	0	2	0	3	283										
05:30 PM	0	140	3	0	143	2	125	0	0	127	0	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	272										
05:45 PM	0	120	1	0	121	1	115	0	0	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	237										
Total	0	541	4	0	545	9	509	0	0	518	0	0	0	0	0	0	2	0	6	0	8	2	0	6	0	8	1071										
Grand Total	0	1744	6	0	1750	19	1702	1	0	1722	1	0	0	0	0	0	7	0	18	0	25	7	0	18	0	25	3498										
Approach %	0	99.7	0.3	0		1.1	98.8	0.1	0		100	0	0	0	0	0	28	0	72	0	25	28	0	72	0	25											
Total %	0	49.9	0.2	0	50	0.5	48.7	0	0	49.2	0	0	0	0	0	0	0.2	0	0.5	0	0.7	0.2	0	0.5	0	0.7											
Pass. Veh.	0	1712	6	0	1718	19	1664	1	0	1684	1	0	0	0	0	1	7	0	18	0	25	100	0	18	0	25	3428										
% Pass. Veh.	0	98.2	100	0	98.2	100	97.8	100	0	97.8	100	0	0	0	0	100	100	0	100	0	100	100	0	100	0	100	98										
Trucks	0	32	0	0	32	0	38	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70										
% Trucks	0	1.8	0	0	1.8	0	2.2	0	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2										
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										

Start Time	Route 62 Northbound				Route 62 Southbound				Parking Lot Eastbound				Pumphouse Westbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	0	105	0	0	105	0	84	0	0	84	0	0	0	0	0	189
07:45 AM	0	116	0	0	116	0	94	1	0	95	0	0	0	0	0	211
08:00 AM	0	78	0	0	78	2	99	0	0	101	1	0	0	0	0	180
08:15 AM	0	73	0	0	73	0	81	0	0	81	0	0	0	0	0	154
Total Volume	0	372	0	0	372	2	358	1	0	361	1	0	0	0	0	734
% App. Total	0	100	0	0		0.6	99.2	0.3	0		100	0	0	0	0	
PHF	.000	.802	.000	.000	.802	.250	.904	.250	.000	.894	.250	.000	.000	.000	.000	.870

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	0	136	0	0	136	3	131	0	0	134	0	0	0	0	1	271
05:00 PM	0	132	0	0	132	5	139	0	0	144	0	0	2	0	3	279
05:15 PM	0	149	0	0	149	1	130	0	0	131	0	0	2	0	3	283
05:30 PM	0	140	3	0	143	2	125	0	0	127	0	0	2	0	2	272
Total Volume	0	557	3	0	560	11	525	0	0	536	0	0	6	0	9	1105
% App. Total	0	99.5	0.5	0		2.1	97.9	0	0		33.3	0	66.7	0		
PHF	.000	.935	.250	.000	.940	.550	.944	.000	.000	.931	.000	.000	.750	.000	.750	.976



Appendix C: Future Traffic Projections

Route 62
Smart Transportation Study

Annual Growth Rate (Urban Non-Int.)* = 0.500%

*Growth Rate suggested by PennDOT

		Existing Year 2009		Year 2010		Year 2030	
		AM	PM	AM	PM	AM	PM
1 - Petroleum Street and Front Street	NBL						
	NBT	186	202	187	203	207	224
	NBR						
	SBL						
	SBT	276	502	277	505	306	557
	SBR						
	EBL	33	32	33	32	37	36
	EBT						
	EBR	11	7	11	7	12	8
	WBL	145	196	146	197	161	218
	WBT						
	WBR	228	272	229	273	253	302
	TOTAL	879	1211	883	1217	976	1345
2 - Front Street and Central Avenue	NBL	52	82	52	82	58	91
	NBT						
	NBR						
	SBL						
	SBT						
	SBR						
	EBL						
	EBT						
	EBR						
	WBL	65	167	65	168	72	185
	WBT	326	388	328	390	362	431
	WBR						
	TOTAL	443	637	445	640	492	707
3 - Front Street and State Street	NBL						
	NBT	133	137	134	138	148	152
	NBR						
	SBL						
	SBT	289	415	290	417	321	461
	SBR	163	239	164	240	181	265
	EBL						
	EBT						
	EBR						
	WBL	6	19	6	19	7	21
	WBT	235	309	236	311	261	343
	WBR	323	430	325	432	359	477
	TOTAL	1149	1549	1155	1557	1277	1719
4 - Front Street and Wilson Avenue	NBL	159	285	160	286	177	316
	NBT						
	NBR						
	SBL						
	SBT						
	SBR						
	EBL						
	EBT						
	EBR						
	WBL						
	WBT	415	463	417	465	461	514
	WBR						
	TOTAL	574	748	577	751	638	830
5 - Petroleum Avenue and 1st Street	NBL	7	6	7	6	8	7
	NBT	24	34	24	34	27	38
	NBR	1	6	1	6	1	7
	SBL	141	318	142	320	157	353
	SBT	34	52	34	52	38	58
	SBR	257	341	258	343	285	379
	EBL	159	174	160	175	177	193
	EBT	153	151	154	152	170	168
	EBR	6	3	6	3	7	3
	WBL						
	WBT						
	WBR						
	TOTAL	782	1085	786	1091	870	1206
6 - 1st Street and Central Avenue	NBL						
	NBT	48	48	48	48	53	53
	NBR	87	87	87	87	97	97
	SBL	15	80	15	80	17	89
	SBT	49	82	49	82	54	91
	SBR						
	EBL	13	26	13	26	14	29
	EBT	275	395	276	397	305	439
	EBR	13	55	13	55	14	61
	WBL						
	WBT						
	WBR						
	TOTAL	500	773	501	775	554	859
7 - 1st Street and State Street	NBL						
	NBT						
	NBR						
	SBL	284	383	285	385	315	425
	SBT	12	44	12	44	13	49
	SBR						
	EBL	138	142	139	143	153	158
	EBT	260	390	261	392	289	433
	EBR	7	23	7	23	8	26
	WBL						
	WBT						
	WBR						
	TOTAL	701	982	704	987	778	1091

Route 62
Smart Transportation Study

Annual Growth Rate (Urban Non-Int.)* = 0.500%

*Growth Rate suggested by PennDOT

		Existing Year 2009		Year 2010		Year 2030	
		AM	PM	AM	PM	AM	PM
8 - 1st Street and Wilson Avenue	NBL						
	NBT	147	257	148	258	163	285
	NBR	2	2	2	2	2	2
	SBL						
	SBT						
	SBR						
	EBL	12	28	12	28	13	31
	EBT	374	488	376	490	415	542
	EBR	150	265	151	266	167	294
	WBL						
	WBT						
	WBR						
	TOTAL	685	1040	689	1044	760	1154
10 - Front Street and Imperial Street	NBL	1	10	1	10	1	11
	NBT	404	427	406	429	449	474
	NBR						
	SBL						
	SBT	370	472	372	474	411	524
	SBR	6	13	6	13	7	14
	EBL	11	36	11	36	12	40
	EBT						
	EBR	12	18	12	18	13	20
	WBL						
	WBT						
	WBR						
	TOTAL	804	976	808	980	893	1083
11 - Front Street and 2nd Street	NBL	48	89	48	89	53	99
	NBT	401	433	403	435	445	481
	NBR						
	SBL						
	SBT	382	484	384	486	424	537
	SBR	0	6	0	6	0	7
	EBL	4	4	4	4	4	4
	EBT						
	EBR	48	82	48	82	53	91
	WBL						
	WBT						
	WBR						
	TOTAL	883	1098	887	1102	979	1219
12 - 2nd Street and Wilson Avenue	NBL	3	3	3	3	3	3
	NBT	44	57	44	57	49	63
	NBR	25	72	25	72	28	80
	SBL	103	229	104	230	114	254
	SBT	32	35	32	35	36	39
	SBR	5	2	5	2	6	2
	EBL	2	5	2	5	2	6
	EBT	0	1	0	1	0	1
	EBR	0	4	0	4	0	4
	WBL	23	82	23	82	26	91
	WBT	1	3	1	3	1	3
	WBR	99	191	99	192	110	212
	TOTAL	337	684	338	686	375	758
13 - 2nd Street and Pine Street	NBL	3	2	3	2	3	2
	NBT	0	1	0	1	0	1
	NBR	1	6	1	6	1	7
	SBL	3	18	3	18	3	20
	SBT	0	4	0	4	0	4
	SBR	24	42	24	42	27	47
	EBL	4	17	4	17	4	19
	EBT	120	271	121	272	133	301
	EBR	1	8	1	8	1	9
	WBL	0	4	0	4	0	4
	WBT	97	241	97	242	108	268
	WBR	3	8	3	8	3	9
	TOTAL	256	622	257	624	283	691
14 - 2nd Street and Imperial Street	NBL	0	4	0	4	0	4
	NBT	69	140	69	141	77	155
	NBR	2	7	2	7	2	8
	SBL	5	12	5	12	6	13
	SBT	58	173	58	174	64	192
	SBR	1	16	1	16	1	18
	EBL	5	19	5	19	6	21
	EBT	6	6	6	6	7	7
	EBR	2	5	2	5	2	6
	WBL	0	6	0	6	0	7
	WBT	0	11	0	11	0	12
	WBR	9	40	9	40	10	44
	TOTAL	157	439	157	441	175	487





















Appendix D: Traffic Signal Inventory

2009 LOS

HCM Signalized Intersection Capacity Analysis

1: W. Front Street & Petroleum Street

ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	0	11	145	0	228	0	186	0	0	276	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	3%				4%		-3%				0%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0				5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00				1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00				1.00	
Frt	1.00	0.85		1.00	0.85		1.00				1.00	
Flt Protected	0.95	1.00		0.95	1.00		1.00				1.00	
Satd. Flow (prot)	1743	1539		1715	1537		1872				1810	
Flt Permitted	0.95	1.00		0.95	1.00		1.00				1.00	
Satd. Flow (perm)	1743	1539		1715	1537		1872				1810	
Peak-hour factor, PHF	0.79	0.79	0.79	0.80	0.80	0.80	0.89	0.89	0.89	0.82	0.82	0.82
Adj. Flow (vph)	42	0	14	181	0	285	0	209	0	0	337	0
RTOR Reduction (vph)	0	0	7	0	0	149	0	0	0	0	0	0
Lane Group Flow (vph)	42	0	7	181	0	136	0	209	0	0	337	0
Confl. Peds. (#/hr)			2	2			2			2	2	1
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Turn Type	custom		custom		custom		custom					
Protected Phases									2		6	
Permitted Phases	4		4		8		8					
Actuated Green, G (s)	31.0		31.0		31.0		31.0		24.0		24.0	
Effective Green, g (s)	31.0		31.0		31.0		31.0		24.0		24.0	
Actuated g/C Ratio	0.48		0.48		0.48		0.48		0.37		0.37	
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0		5.0	
Lane Grp Cap (vph)	831		734		818		733		691		668	
v/s Ratio Prot									0.11		c0.19	
v/s Ratio Perm	0.02		0.00		c0.11		0.09					
v/c Ratio	0.05		0.01		0.22		0.19		0.30		0.50	
Uniform Delay, d1	9.1		8.9		9.9		9.8		14.6		15.9	
Progression Factor	1.00		1.00		0.88		0.57		1.88		1.00	
Incremental Delay, d2	0.1		0.0		0.6		0.6		1.0		2.7	
Delay (s)	9.2		9.0		9.3		6.1		28.4		18.6	
Level of Service	A		A		A		A		C		B	
Approach Delay (s)	9.2				7.4		28.4				18.6	
Approach LOS	A				A		C				B	
Intersection Summary												
HCM Average Control Delay	15.1			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.34											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			10.0					
Intersection Capacity Utilization	70.8%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: W. Front Street & Central Avenue



















ROUTE 62
Timing Plan: 2009 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕↕	↖	
Volume (veh/h)	0	0	65	326	52	0
Sign Control	Free			Free	Stop	
Grade	-4%			1%	-3%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.68	0.68
Hourly flow rate (vph)	0	0	76	384	76	0
Pedestrians	1				1	
Lane Width (ft)	0.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	380			386		
pX, platoon unblocked						
vC, conflicting volume			1		347	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		347	1
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		87	100
cM capacity (veh/h)			1604		599	1088
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	204	256	76			
Volume Left	76	0	76			
Volume Right	0	0	0			
cSH	1604	1700	599			
Volume to Capacity	0.05	0.15	0.13			
Queue Length 95th (ft)	4	0	11			
Control Delay (s)	3.0	0.0	11.9			
Lane LOS	A		B			
Approach Delay (s)	1.3		11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			65.0%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

3: E. Front Street & Veterans Memorial Bridge

ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	6	235	323	0	133	0	0	289	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	11	12	12	12	12	12	12	15
Grade (%)		-1%			1%			-1%			-2%	
Total Lost time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.98		1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)				1627	1774	1527		1910			1919	1769
Flt Permitted				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)				1627	1774	1527		1910			1919	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.71	0.71	0.71	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	6	253	347	0	187	0	0	325	183
RTOR Reduction (vph)	0	0	0	0	0	171	0	0	0	0	0	121
Lane Group Flow (vph)	0	0	0	6	253	176	0	187	0	0	325	62
Confl. Peds. (#/hr)	1					1	2		3	3		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm						Perm
Protected Phases					8			2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				33.0	33.0	33.0		22.0			22.0	22.0
Effective Green, g (s)				33.0	33.0	33.0		22.0			22.0	22.0
Actuated g/C Ratio				0.51	0.51	0.51		0.34			0.34	0.34
Clearance Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)				826	901	775		646			650	599
v/s Ratio Prot					c0.14			0.10			c0.17	
v/s Ratio Perm				0.00		0.12						0.04
v/c Ratio				0.01	0.28	0.23		0.29			0.50	0.10
Uniform Delay, d1				7.9	9.2	8.9		15.8			17.1	14.7
Progression Factor				1.00	1.00	1.00		1.05			1.00	1.00
Incremental Delay, d2				0.0	0.8	0.7		1.1			2.7	0.3
Delay (s)				7.9	10.0	9.6		17.7			19.9	15.1
Level of Service				A	A	A		B			B	B
Approach Delay (s)		0.0			9.7			17.7			18.1	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			14.2				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			54.2%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: E. Front Street & Wilson Avenue



















ROUTE 62
Timing Plan: 2009 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↘↗	
Volume (veh/h)	0	0	0	415	159	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.76	0.71	0.71
Hourly flow rate (vph)	0	0	0	546	224	0
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			1		274	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		274	1
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		67	100
cM capacity (veh/h)			1619		687	1075
Direction, Lane #	WB 1	WB 2	NB 1	NB 2		
Volume Total	273	273	112	112		
Volume Left	0	0	112	112		
Volume Right	0	0	0	0		
cSH	1700	1700	687	687		
Volume to Capacity	0.16	0.16	0.16	0.16		
Queue Length 95th (ft)	0	0	14	14		
Control Delay (s)	0.0	0.0	11.3	11.3		
Lane LOS			B	B		
Approach Delay (s)	0.0		11.3			
Approach LOS			B			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			45.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: W. 1st Street & Petroleum Street

















ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	153	6	0	0	0	7	24	1	141	34	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	13	13	12	12	14	12	10	10	12
Grade (%)		-2%			3%			-5%			7%	
Total Lost time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	0.87	
Flt Protected	0.95	1.00						0.99		0.95	1.00	
Satd. Flow (prot)	1666	1762						1985		1610	1470	
Flt Permitted	0.95	1.00						0.89		0.95	1.00	
Satd. Flow (perm)	1666	1762						1782		1610	1470	
Peak-hour factor, PHF	0.86	0.86	0.86	0.92	0.92	0.92	0.57	0.57	0.57	0.77	0.77	0.77
Adj. Flow (vph)	185	178	7	0	0	0	12	42	2	183	44	334
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	128	0
Lane Group Flow (vph)	185	185	0	0	0	0	0	56	0	183	250	0
Confl. Peds. (#/hr)	5		1	1		5			3	3		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm						Perm			Prot		
Protected Phases	4						2			1		
Permitted Phases	4						2			6		
Actuated Green, G (s)	15.0	15.0						15.0		20.0	40.0	
Effective Green, g (s)	15.0	15.0						15.0		20.0	40.0	
Actuated g/C Ratio	0.23	0.23						0.23		0.31	0.62	
Clearance Time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Grp Cap (vph)	384	407						411		495	905	
v/s Ratio Prot		0.11								c0.11	c0.17	
v/s Ratio Perm	c0.11							0.03				
v/c Ratio	0.48	0.45						0.14		0.37	0.28	
Uniform Delay, d1	21.6	21.5						19.9		17.6	5.8	
Progression Factor	1.00	1.00						1.00		1.20	3.22	
Incremental Delay, d2	4.3	3.6						0.7		2.0	0.7	
Delay (s)	25.9	25.1						20.5		23.0	19.4	
Level of Service	C	C						C		C	B	
Approach Delay (s)		25.5			0.0			20.5			20.6	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM Average Control Delay			22.4				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			54.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: W. 1st Street & Central Avenue
















ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	275	13	0	0	0	0	48	87	15	49	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	13	12	10	10	12
Grade (%)		-3%			1%			0%			3%	
Total Lost time (s)		5.0						5.0		5.0	5.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		1.00	1.00	
Frt		0.99						0.91		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3107						1775		1565	1648	
Flt Permitted		1.00						1.00		0.65	1.00	
Satd. Flow (perm)		3107						1775		1063	1648	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.81	0.81	0.81	0.76	0.76	0.76
Adj. Flow (vph)	15	316	15	0	0	0	0	59	107	20	64	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	91	0	0	0	0
Lane Group Flow (vph)	0	342	0	0	0	0	0	75	0	20	64	0
Confl. Peds. (#/hr)	1		5	5		1	2					2
Heavy Vehicles (%)	9%	9%	9%	2%	2%	2%	1%	1%	1%	6%	6%	6%
Turn Type	Perm						Perm					
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		40.1						8.6		8.6	8.6	
Effective Green, g (s)		40.1						8.6		8.6	8.6	
Actuated g/C Ratio		0.68						0.15		0.15	0.15	
Clearance Time (s)		5.0						5.0		5.0	5.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2122						260		156	241	
v/s Ratio Prot								c0.04			0.04	
v/s Ratio Perm		0.11								0.02		
v/c Ratio		0.16						0.29		0.13	0.27	
Uniform Delay, d1		3.3						22.3		21.8	22.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.6		0.4	0.6	
Delay (s)		3.5						22.9		22.2	22.8	
Level of Service		A						C		C	C	
Approach Delay (s)		3.5			0.0			22.9			22.7	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		11.6						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.18										
Actuated Cycle Length (s)		58.7						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		49.5%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: E. 1st Street & State Street

ROUTE 62
Timing Plan: 2009 AM


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	260	7	0	0	0	0	0	0	284	12	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	12	12	12	13	12	12	14	12
Grade (%)		1%			-1%			-1%			-3%	
Total Lost time (s)		5.0								5.0	5.0	
Lane Util. Factor		0.95								1.00	1.00	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		1.00								1.00	1.00	
Flt Protected		0.98								0.95	1.00	
Satd. Flow (prot)		3562								1743	1959	
Flt Permitted		0.98								0.95	1.00	
Satd. Flow (perm)		3562								1743	1959	
Peak-hour factor, PHF	0.99	0.99	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	139	263	7	0	0	0	0	0	0	326	14	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	407	0	0	0	0	0	0	0	326	14	0
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Perm					Perm						
Protected Phases		4									6	
Permitted Phases	4									6		
Actuated Green, G (s)		22.0								33.0	33.0	
Effective Green, g (s)		22.0								33.0	33.0	
Actuated g/C Ratio		0.34								0.51	0.51	
Clearance Time (s)		5.0								5.0	5.0	
Lane Grp Cap (vph)		1206								885	995	
v/s Ratio Prot											0.01	
v/s Ratio Perm		0.11								c0.19		
v/c Ratio		0.34								0.37	0.01	
Uniform Delay, d1		16.1								9.7	7.9	
Progression Factor		1.00								0.08	0.07	
Incremental Delay, d2		0.8								1.1	0.0	
Delay (s)		16.8								1.8	0.6	
Level of Service		B								A	A	
Approach Delay (s)		16.8			0.0			0.0			1.8	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM Average Control Delay		10.0			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		65.0			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		54.2%			ICU Level of Service			A				
Analysis Period (min)		15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

8: E. 1st Street & Wilson Avenue

ROUTE 62
Timing Plan: 2009 AM




																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Volume (veh/h)	12	374	150	0	0	0	0	147	2	0	0	0								
Sign Control	Free			Free			Stop			Stop										
Grade	0%			0%			0%			0%										
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	12	390	156	0	0	0	0	160	2	0	0	0								
Pedestrians	1			1			2													
Lane Width (ft)	12.0			0.0			12.0													
Walking Speed (ft/s)	4.0			4.0			4.0													
Percent Blockage	0			0			0													
Right turn flare (veh)																				
Median type	None			None																
Median storage (veh)																				
Upstream signal (ft)	351																			
pX, platoon unblocked				0.97				0.97	0.97	0.97	0.97	0.97								
vC, conflicting volume	0	548			418			417	393	498	573	1								
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	0	517			382			381	356	465	542	1								
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2								
tC, 2 stage (s)																				
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3								
p0 queue free %	99	100			100			70	100	100	100	100								
cM capacity (veh/h)	1617	1014			552			529	665	373	429	1083								
Direction, Lane #	EB 1	EB 2	EB 3	NB 1	NB 2															
Volume Total	12	390	156	107	55															
Volume Left	12	0	0	0	0															
Volume Right	0	0	156	0	2															
cSH	1617	1700	1700	529	533															
Volume to Capacity	0.01	0.23	0.09	0.20	0.10															
Queue Length 95th (ft)	1	0	0	19	9															
Control Delay (s)	7.2	0.0	0.0	13.5	12.5															
Lane LOS	A	B			B															
Approach Delay (s)	0.2	13.2																		
Approach LOS	B																			
Intersection Summary																				
Average Delay	3.1																			
Intersection Capacity Utilization	40.3%			ICU Level of Service					A											
Analysis Period (min)	15																			

HCM Unsignalized Intersection Capacity Analysis

10: Imperial Street & E. Front Street

ROUTE 62
Timing Plan: 2009 AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	12	1	404	370	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.82	0.82	0.86	0.86
Hourly flow rate (vph)	17	19	1	493	430	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	683	219	437			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	683	219	437			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	100			
cM capacity (veh/h)	387	792	1105			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	36	165	328	287	150	
Volume Left	17	1	0	0	0	
Volume Right	19	0	0	0	7	
cSH	528	1105	1700	1700	1700	
Volume to Capacity	0.07	0.00	0.19	0.17	0.09	
Queue Length 95th (ft)	5	0	0	0	0	
Control Delay (s)	12.3	0.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	12.3	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			21.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: E.2nd Street & E. Front Street

ROUTE 62
Timing Plan: 2009 AM













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	48	48	401	382	0
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.93	0.93	0.81	0.81	0.92	0.92
Hourly flow rate (vph)	4	52	59	495	415	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1029	415	415			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1029	415	415			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	92	95			
cM capacity (veh/h)	243	631	1138			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	52	59	495	415	0
Volume Left	4	0	59	0	0	0
Volume Right	0	52	0	0	0	0
cSH	243	631	1138	1700	1700	1700
Volume to Capacity	0.02	0.08	0.05	0.29	0.24	0.00
Queue Length 95th (ft)	1	7	4	0	0	0
Control Delay (s)	20.1	11.2	8.3	0.0	0.0	0.0
Lane LOS	C	B	A			
Approach Delay (s)	11.9		0.9		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			36.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: E.2nd Street & Wilson Avenue

















ROUTE 62
Timing Plan: 2009 AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	23	100	47	25	103	32
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.78	0.78	0.76	0.76
Hourly flow rate (vph)	27	118	60	32	136	42
Pedestrians	4		2			7
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		0			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	379	71			96	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379	71			96	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	88			91	
cM capacity (veh/h)	563	982			1492	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	145	60	32	178		
Volume Left	27	0	0	136		
Volume Right	118	0	32	0		
cSH	862	1700	1700	1492		
Volume to Capacity	0.17	0.04	0.02	0.09		
Queue Length 95th (ft)	15	0	0	7		
Control Delay (s)	10.0	0.0	0.0	6.0		
Lane LOS	B			A		
Approach Delay (s)	10.0	0.0		6.0		
Approach LOS	B					
Intersection Summary						
Average Delay		6.1				
Intersection Capacity Utilization		29.9%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: E.2nd Street & Pine Street

















ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	120	1	0	97	3	3	0	1	3	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	1.00	1.00	1.00	0.96	0.96	0.96
Hourly flow rate (vph)	5	138	1	0	104	3	3	0	1	3	0	25
Pedestrians		1			1			2			7	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	115			141			282	264	142	263	263	114
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			141			282	264	142	263	263	114
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	97
cM capacity (veh/h)	1472			1446			650	638	909	683	639	938
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	144	108	4	28								
Volume Left	5	0	3	3								
Volume Right	1	3	1	25								
cSH	1472	1446	700	901								
Volume to Capacity	0.00	0.00	0.01	0.03								
Queue Length 95th (ft)	0	0	0	2								
Control Delay (s)	0.3	0.0	10.2	9.1								
Lane LOS	A		B	A								
Approach Delay (s)	0.3	0.0	10.2	9.1								
Approach LOS			B	A								
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			20.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Imperial Street & E.2nd Street

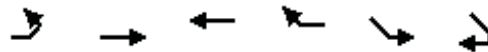
ROUTE 62
Timing Plan: 2009 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	6	2	0	0	9	0	69	2	5	58	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.46	0.46	0.46	0.75	0.75	0.75	0.68	0.68	0.68	0.89	0.89	0.89
Hourly flow rate (vph)	11	13	4	0	0	12	0	101	3	6	65	1
Pedestrians		1			2						4	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	197	184	67	193	183	109	67			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197	184	67	193	183	109	67			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	100	100	100	99	100			100		
cM capacity (veh/h)	750	709	1002	752	710	945	1539			1495		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	28	12	104	72								
Volume Left	11	0	0	6								
Volume Right	4	12	3	1								
cSH	759	945	1539	1495								
Volume to Capacity	0.04	0.01	0.00	0.00								
Queue Length 95th (ft)	3	1	0	0								
Control Delay (s)	9.9	8.9	0.0	0.6								
Lane LOS	A	A		A								
Approach Delay (s)	9.9	8.9	0.0	0.6								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			19.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

19: E. 1st Street & E. Front Street

ROUTE 62
Timing Plan: 2009 AM






Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑		↑↑		
Volume (veh/h)	0	376	0	415	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	409	0	451	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		618				
pX, platoon unblocked						
vC, conflicting volume	451				204	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	451				204	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1106				765	1084
Direction, Lane #	EB 1	EB 2	WB 1	WB 2		
Volume Total	204	204	226	226		
Volume Left	0	0	0	0		
Volume Right	0	0	226	226		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.12	0.12	0.13	0.13		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			17.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

121: E. 2nd Alley & Wilson Avenue

ROUTE 62
Timing Plan: 2009 AM





















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	0	3	143	135	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.78	0.78	0.76	0.76
Hourly flow rate (vph)	4	0	4	183	178	7
Pedestrians				2	7	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	379	183	184			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379	183	184			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	622	863	1397			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	187	184			
Volume Left	4	4	0			
Volume Right	0	0	7			
cSH	622	1397	1700			
Volume to Capacity	0.01	0.00	0.11			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	10.8	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.8	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			20.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: W. Front Street & Petroleum Street

ROUTE 62
Timing Plan: 2009 PM

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (vph)	32	0	7	196	0	272	0	202	0	0	502	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Grade (%)	3%			4%			-3%			0%				
Total Lost time (s)	5.0		5.0	5.0		5.0		5.0			5.0			
Lane Util. Factor	1.00		1.00	1.00		1.00		1.00			1.00			
Frpb, ped/bikes	1.00		0.99	1.00		0.97		1.00			1.00			
Flpb, ped/bikes	0.99		1.00	1.00		1.00		1.00			1.00			
Frt	1.00		0.85	1.00		0.85		1.00			1.00			
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00			
Satd. Flow (prot)	1765		1567	1747		1524		1909			1881			
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00			
Satd. Flow (perm)	1765		1567	1747		1524		1909			1881			
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.83	0.83	0.83	0.92	0.92	0.92		
Adj. Flow (vph)	40	0	9	231	0	320	0	243	0	0	546	0		
RTOR Reduction (vph)	0	0	5	0	0	178	0	0	0	0	0	0		
Lane Group Flow (vph)	40	0	4	231	0	142	0	243	0	0	546	0		
Confl. Peds. (#/hr)	5		3	3		5	2		3	3		2		
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%		
Turn Type	custom		custom		custom		custom							
Protected Phases							2						6	
Permitted Phases	4		4		8		8							
Actuated Green, G (s)	40.0		40.0		40.0		40.0						40.0	
Effective Green, g (s)	40.0		40.0		40.0		40.0						40.0	
Actuated g/C Ratio	0.44		0.44		0.44		0.44						0.44	
Clearance Time (s)	5.0		5.0		5.0		5.0						5.0	
Lane Grp Cap (vph)	784		696		776		677						848	836
v/s Ratio Prot							0.13						c0.29	
v/s Ratio Perm	0.02		0.00		c0.13		0.09							
v/c Ratio	0.05		0.01		0.30		0.21						0.29	0.65
Uniform Delay, d1	14.2		13.9		16.0		15.3						15.9	19.6
Progression Factor	1.00		1.00		0.82		0.45						0.68	1.00
Incremental Delay, d2	0.1		0.0		1.0		0.7						0.8	4.0
Delay (s)	14.3		13.9		14.1		7.6						11.5	23.5
Level of Service	B		B		B		A						B	C
Approach Delay (s)	14.3				10.3		11.5						23.5	
Approach LOS	B				B		B						C	
Intersection Summary														
HCM Average Control Delay			15.9		HCM Level of Service				B					
HCM Volume to Capacity ratio			0.48											
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				10.0					
Intersection Capacity Utilization			91.7%		ICU Level of Service				F					
Analysis Period (min)			15											
c Critical Lane Group														

HCM Unsignalized Intersection Capacity Analysis

2: W. Front Street & Central Avenue



















ROUTE 62
Timing Plan: 2009 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↔↕	↖	
Volume (veh/h)	0	0	167	388	82	0
Sign Control	Free			Free	Stop	
Grade	-4%			1%	-3%	
Peak Hour Factor	0.92	0.92	0.91	0.91	0.79	0.79
Hourly flow rate (vph)	0	0	184	426	104	0
Pedestrians	3				1	
Lane Width (ft)	0.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	380			386		
pX, platoon unblocked						
vC, conflicting volume			1		584	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		584	1
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		74	100
cM capacity (veh/h)			1619		397	1088
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	326	284	104			
Volume Left	184	0	104			
Volume Right	0	0	0			
cSH	1619	1700	397			
Volume to Capacity	0.11	0.17	0.26			
Queue Length 95th (ft)	10	0	26			
Control Delay (s)	4.6	0.0	17.3			
Lane LOS	A		C			
Approach Delay (s)	2.5		17.3			
Approach LOS			C			
Intersection Summary						
Average Delay			4.6			
Intersection Capacity Utilization			78.5%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

3: E. Front Street & Veterans Memorial Bridge

ROUTE 62
Timing Plan: 2009 PM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	19	309	430	0	137	0	0	415	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	11	12	12	12	12	12	12	15
Grade (%)		-1%			1%			-1%			-2%	
Total Lost time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	0.98
Flpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)				1655	1809	1591		1891			1900	1735
Flt Permitted				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)				1655	1809	1591		1891			1900	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	20	325	453	0	151	0	0	437	252
RTOR Reduction (vph)	0	0	0	0	0	252	0	0	0	0	0	140
Lane Group Flow (vph)	0	0	0	20	325	201	0	151	0	0	437	112
Confl. Peds. (#/hr)			2	2			9		21	21		9
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Perm		Perm						Perm
Protected Phases					8			2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				40.0	40.0	40.0		40.0			40.0	40.0
Effective Green, g (s)				40.0	40.0	40.0		40.0			40.0	40.0
Actuated g/C Ratio				0.44	0.44	0.44		0.44			0.44	0.44
Clearance Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)				736	804	707		840			844	771
v/s Ratio Prot					c0.18			0.08			c0.23	
v/s Ratio Perm				0.01		0.13						0.06
v/c Ratio				0.03	0.40	0.28		0.18			0.52	0.15
Uniform Delay, d1				14.1	16.9	15.9		15.1			18.0	14.8
Progression Factor				1.00	1.00	1.00		1.60			1.00	1.00
Incremental Delay, d2				0.1	1.5	1.0		0.4			2.3	0.4
Delay (s)				14.1	18.4	16.9		24.5			20.3	15.2
Level of Service				B	B	B		C			C	B
Approach Delay (s)		0.0			17.5			24.5			18.5	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM Average Control Delay			18.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			75.0%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: E. Front Street & Wilson Avenue



















ROUTE 62
Timing Plan: 2009 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Volume (veh/h)	0	0	0	463	285	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	0	0	0	514	339	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			0		257	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		257	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		52	100
cM capacity (veh/h)			1622		712	1088
Direction, Lane #	WB 1	WB 2	NB 1	NB 2		
Volume Total	257	257	170	170		
Volume Left	0	0	170	170		
Volume Right	0	0	0	0		
cSH	1700	1700	712	712		
Volume to Capacity	0.15	0.15	0.24	0.24		
Queue Length 95th (ft)	0	0	23	23		
Control Delay (s)	0.0	0.0	11.6	11.6		
Lane LOS			B	B		
Approach Delay (s)	0.0		11.6			
Approach LOS			B			
Intersection Summary						
Average Delay			4.6			
Intersection Capacity Utilization			56.4%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: W. 1st Street & Petroleum Street

















ROUTE 62
Timing Plan: 2009 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	151	3	0	0	0	6	34	6	318	52	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	13	13	12	12	14	12	10	10	12
Grade (%)		-2%			3%			-5%			7%	
Total Lost time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	0.96	1.00						1.00		1.00	1.00	
Frt	1.00	1.00						0.98		1.00	0.87	
Flt Protected	0.95	1.00						0.99		0.95	1.00	
Satd. Flow (prot)	1619	1767						2019		1610	1474	
Flt Permitted	0.95	1.00						0.92		0.95	1.00	
Satd. Flow (perm)	1619	1767						1870		1610	1474	
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.68	0.68	0.68	0.94	0.94	0.94
Adj. Flow (vph)	218	189	4	0	0	0	9	50	9	338	55	363
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	141	0
Lane Group Flow (vph)	218	193	0	0	0	0	0	68	0	338	277	0
Confl. Peds. (#/hr)	13		3	3		13			9	9		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Perm						Perm			Prot		
Protected Phases	4						2			1		
Permitted Phases	4						2			6		
Actuated Green, G (s)	25.0	25.0						15.0		35.0	55.0	
Effective Green, g (s)	25.0	25.0						15.0		35.0	55.0	
Actuated g/C Ratio	0.28	0.28						0.17		0.39	0.61	
Clearance Time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Grp Cap (vph)	450	491						312		626	901	
v/s Ratio Prot		0.11								c0.21	c0.19	
v/s Ratio Perm	c0.13							0.04				
v/c Ratio	0.48	0.39						0.22		0.54	0.31	
Uniform Delay, d1	27.1	26.3						32.4		21.3	8.4	
Progression Factor	1.00	1.00						1.00		1.23	4.99	
Incremental Delay, d2	3.7	2.4						1.6		2.8	0.8	
Delay (s)	30.8	28.7						34.0		29.1	42.6	
Level of Service	C	C						C		C	D	
Approach Delay (s)		29.8			0.0			34.0			36.5	
Approach LOS		C			A			C			D	
Intersection Summary												
HCM Average Control Delay			34.2				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			75.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: W. 1st Street & Central Avenue
















ROUTE 62
Timing Plan: 2009 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	395	55	0	0	0	0	48	83	80	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	13	12	10	10	12
Grade (%)		-3%			1%			0%			3%	
Total Lost time (s)		5.0						5.0		5.0	5.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						0.98		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		0.98						0.91		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3271						1746		1622	1729	
Flt Permitted		1.00						1.00		0.61	1.00	
Satd. Flow (perm)		3271						1746		1047	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.79	0.79	0.79
Adj. Flow (vph)	28	429	60	0	0	0	0	57	99	101	104	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	83	0	0	0	0
Lane Group Flow (vph)	0	510	0	0	0	0	0	73	0	101	104	0
Confl. Peds. (#/hr)	14		7	7		14	13		11	11		13
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm					Perm						
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		51.2						11.9		11.9	11.9	
Effective Green, g (s)		51.2						11.9		11.9	11.9	
Actuated g/C Ratio		0.70						0.16		0.16	0.16	
Clearance Time (s)		5.0						5.0		5.0	5.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2291						284		170	281	
v/s Ratio Prot								0.04			0.06	
v/s Ratio Perm		0.16								c0.10		
v/c Ratio		0.22						0.26		0.59	0.37	
Uniform Delay, d1		3.9						26.7		28.4	27.3	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.5		5.5	0.8	
Delay (s)		4.1						27.2		33.8	28.1	
Level of Service		A						C		C	C	
Approach Delay (s)		4.1			0.0			27.2			30.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		14.5						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.29										
Actuated Cycle Length (s)		73.1						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		63.0%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: E. 1st Street & State Street


















ROUTE 62
Timing Plan: 2009 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	390	23	0	0	0	0	0	0	383	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	12	12	12	13	12	12	14	12
Grade (%)		1%			-1%			-1%			-3%	
Total Lost time (s)		5.0								5.0	5.0	
Lane Util. Factor		0.95								1.00	1.00	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								0.99	1.00	
Frt		0.99								1.00	1.00	
Flt Protected		0.99								0.95	1.00	
Satd. Flow (prot)		3595								1793	2037	
Flt Permitted		0.99								0.95	1.00	
Satd. Flow (perm)		3595								1793	2037	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	153	419	25	0	0	0	0	0	0	399	46	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	594	0	0	0	0	0	0	0	399	46	0
Confl. Peds. (#/hr)	4		6	6		4	12		13	14		12
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Perm						Perm					
Protected Phases		4									6	
Permitted Phases	4									6		
Actuated Green, G (s)		33.0								47.0	47.0	
Effective Green, g (s)		33.0								47.0	47.0	
Actuated g/C Ratio		0.37								0.52	0.52	
Clearance Time (s)		5.0								5.0	5.0	
Lane Grp Cap (vph)		1318								936	1064	
v/s Ratio Prot											0.02	
v/s Ratio Perm		0.17								0.22		
v/c Ratio		0.45								0.43	0.04	
Uniform Delay, d1		21.6								13.2	10.5	
Progression Factor		1.00								0.10	0.14	
Incremental Delay, d2		1.1								1.3	0.1	
Delay (s)		22.7								2.6	1.5	
Level of Service		C								A	A	
Approach Delay (s)		22.7			0.0			0.0			2.5	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM Average Control Delay			14.1				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			75.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

8: E. 1st Street & Wilson Avenue

ROUTE 62
Timing Plan: 2009 PM




																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	28	488	265	0	0	0	0	257	2	0	0	0							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92							
Hourly flow rate (vph)	29	514	279	0	0	0	0	317	2	0	0	0							
Pedestrians	5			4			4												
Lane Width (ft)	12.0			0.0			12.0												
Walking Speed (ft/s)	4.0			4.0			4.0												
Percent Blockage	0			0			0												
Right turn flare (veh)																			
Median type	None			None															
Median storage (veh)																			
Upstream signal (ft)	351																		
pX, platoon unblocked				0.85			0.85			0.85	0.85	0.85							
vC, conflicting volume	0	797			582			577	522	738	856	5							
vC1, stage 1 conf vol																			
vC2, stage 2 conf vol																			
vCu, unblocked vol	0	671			417			411	346	601	740	5							
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2							
tC, 2 stage (s)																			
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3							
p0 queue free %	98	100			100			28	100	100	100	100							
cM capacity (veh/h)	1630	777			454			442	591	143	286	1074							
Direction, Lane #	EB 1	EB 2	EB 3	NB 1	NB 2														
Volume Total	29	514	279	212	108														
Volume Left	29	0	0	0	0														
Volume Right	0	0	279	0	2														
cSH	1630	1700	1700	442	444														
Volume to Capacity	0.02	0.30	0.16	0.48	0.24														
Queue Length 95th (ft)	1	0	0	63	24														
Control Delay (s)	7.2	0.0	0.0	20.4	15.7														
Lane LOS	A				C														
Approach Delay (s)	0.3				18.8														
Approach LOS				C															
Intersection Summary																			
Average Delay	5.5																		
Intersection Capacity Utilization	51.1%			ICU Level of Service					A										
Analysis Period (min)	15																		

HCM Unsignalized Intersection Capacity Analysis

10: Imperial Street & E. Front Street

ROUTE 62
Timing Plan: 2009 PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	36	18	10	427	472	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	51	25	11	485	508	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	780	261	522			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	780	261	522			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	97	99			
cM capacity (veh/h)	333	744	1041			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	76	173	323	338	183	
Volume Left	51	11	0	0	0	
Volume Right	25	0	0	0	14	
cSH	408	1041	1700	1700	1700	
Volume to Capacity	0.19	0.01	0.19	0.20	0.11	
Queue Length 95th (ft)	17	1	0	0	0	
Control Delay (s)	15.8	0.7	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	15.8	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			29.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: E.2nd Street & E. Front Street

ROUTE 62
Timing Plan: 2009 PM













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	82	89	433	484	6
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.69	0.69	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	6	119	97	471	556	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1220	556	563			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1220	556	563			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	78	90			
cM capacity (veh/h)	182	534	1013			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	6	119	97	471	556	7
Volume Left	6	0	97	0	0	0
Volume Right	0	119	0	0	0	7
cSH	182	534	1013	1700	1700	1700
Volume to Capacity	0.03	0.22	0.10	0.28	0.33	0.00
Queue Length 95th (ft)	2	21	8	0	0	0
Control Delay (s)	25.4	13.7	8.9	0.0	0.0	0.0
Lane LOS	D	B	A			
Approach Delay (s)	14.2		1.5		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			43.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: E.2nd Street & Wilson Avenue

















ROUTE 62
Timing Plan: 2009 PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	82	194	60	72	229	40
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	88	209	64	77	254	44
Pedestrians	5					17
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	4.0					4.0
Percent Blockage	0					1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	622	86			145	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	622	86			145	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	78			82	
cM capacity (veh/h)	372	961			1443	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	297	64	77	299		
Volume Left	88	0	0	254		
Volume Right	209	0	77	0		
cSH	653	1700	1700	1443		
Volume to Capacity	0.45	0.04	0.05	0.18		
Queue Length 95th (ft)	59	0	0	16		
Control Delay (s)	15.0	0.0	0.0	7.1		
Lane LOS	C			A		
Approach Delay (s)	15.0	0.0		7.1		
Approach LOS	C					
Intersection Summary						
Average Delay		8.9				
Intersection Capacity Utilization		45.8%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: E.2nd Street & Pine Street

















ROUTE 62
Timing Plan: 2009 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	271	8	4	241	8	2	1	6	18	4	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.99	0.99	0.99	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	19	304	9	4	243	8	3	1	8	22	5	52
Pedestrians		3						5			34	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	286			318			666	646	314	645	646	284
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	286			318			666	646	314	645	646	284
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			99	100	99	94	99	93
cM capacity (veh/h)	1252			1248			330	373	728	357	373	736
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	333	256	12	80								
Volume Left	19	4	3	22								
Volume Right	9	8	8	52								
cSH	1252	1248	530	542								
Volume to Capacity	0.02	0.00	0.02	0.15								
Queue Length 95th (ft)	1	0	2	13								
Control Delay (s)	0.6	0.2	11.9	12.8								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.6	0.2	11.9	12.8								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			37.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Imperial Street & E.2nd Street

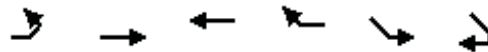
ROUTE 62
Timing Plan: 2009 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	6	5	6	11	40	4	140	7	12	173	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.66	0.66	0.66	0.97	0.97	0.97
Hourly flow rate (vph)	25	8	7	8	15	53	6	212	11	12	178	16
Pedestrians		1						4			3	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	506	447	192	456	450	220	196			223		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	506	447	192	456	450	220	196			223		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	98	99	98	97	94	100			99		
cM capacity (veh/h)	433	502	852	501	500	822	1388			1358		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	40	76	229	207								
Volume Left	25	8	6	12								
Volume Right	7	53	11	16								
cSH	486	690	1388	1358								
Volume to Capacity	0.08	0.11	0.00	0.01								
Queue Length 95th (ft)	7	9	0	1								
Control Delay (s)	13.1	10.9	0.2	0.5								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.1	10.9	0.2	0.5								
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			29.9%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

19: E. 1st Street & E. Front Street

ROUTE 62
Timing Plan: 2009 PM






Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑		↑↑		
Volume (veh/h)	0	376	0	415	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	409	0	451	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		618				
pX, platoon unblocked						
vC, conflicting volume	451				204	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	451				204	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1106				765	1084
Direction, Lane #	EB 1	EB 2	WB 1	WB 2		
Volume Total	204	204	226	226		
Volume Left	0	0	0	0		
Volume Right	0	0	226	226		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.12	0.12	0.13	0.13		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			17.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

121: E. 2nd Alley & Wilson Avenue

ROUTE 62
Timing Plan: 2009 PM





















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	3	248	264	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	8	8	3	264	293	2
Pedestrians	3				17	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	585	297	299			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	585	297	299			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	468	745	1271			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	16	267	296			
Volume Left	8	3	0			
Volume Right	8	0	2			
cSH	575	1271	1700			
Volume to Capacity	0.03	0.00	0.17			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.4	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.4	0.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.4%	ICU Level of Service	A	
Analysis Period (min)			15			

2030 No Build LOS

HCM Signalized Intersection Capacity Analysis

1: W. Front Street & Petroleum Street

ROUTE 62
Timing Plan: 2030 AM

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (vph)	33	0	11	145	0	228	0	186	0	0	276	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Grade (%)	3%			4%			-3%			0%						
Total Lost time (s)	5.0		5.0	5.0		5.0		5.0			5.0					
Lane Util. Factor	1.00		1.00	1.00		1.00		1.00			1.00					
Frpb, ped/bikes	1.00		0.99	1.00		1.00		1.00			1.00					
Flpb, ped/bikes	1.00		1.00	1.00		1.00		1.00			1.00					
Frt	1.00		0.85	1.00		0.85		1.00			1.00					
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00					
Satd. Flow (prot)	1743		1539	1715		1537		1872			1810					
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00					
Satd. Flow (perm)	1743		1539	1715		1537		1872			1810					
Peak-hour factor, PHF	0.79	0.79	0.79	0.80	0.80	0.80	0.89	0.89	0.89	0.82	0.82	0.82				
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%				
Adj. Flow (vph)	46	0	15	201	0	316	0	232	0	0	374	0				
RTOR Reduction (vph)	0	0	8	0	0	165	0	0	0	0	0	0				
Lane Group Flow (vph)	46	0	7	201	0	151	0	232	0	0	374	0				
Confl. Peds. (#/hr)			2	2			2		2	2		1				
Confl. Bikes (#/hr)												1				
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	5%	5%	5%				
Turn Type	custom		custom		custom		custom									
Protected Phases									2		6					
Permitted Phases	4		4		8		8									
Actuated Green, G (s)	31.0		31.0		31.0		31.0		24.0		24.0					
Effective Green, g (s)	31.0		31.0		31.0		31.0		24.0		24.0					
Actuated g/C Ratio	0.48		0.48		0.48		0.48		0.37		0.37					
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0		5.0					
Lane Grp Cap (vph)	831		734		818		733		691		668					
v/s Ratio Prot									0.12		c0.21					
v/s Ratio Perm	0.03		0.00		c0.12		0.10									
v/c Ratio	0.06		0.01		0.25		0.21		0.34		0.56					
Uniform Delay, d1	9.1		8.9		10.1		9.9		14.8		16.3					
Progression Factor	1.00		1.00		0.88		0.56		1.85		1.00					
Incremental Delay, d2	0.1		0.0		0.7		0.6		1.2		3.4					
Delay (s)	9.3		9.0		9.5		6.1		28.5		19.7					
Level of Service	A		A		A		A		C		B					
Approach Delay (s)			9.2				7.5		28.5		19.7					
Approach LOS			A				A		C		B					
Intersection Summary																
HCM Average Control Delay	15.5			HCM Level of Service			B									
HCM Volume to Capacity ratio	0.38															
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			10.0									
Intersection Capacity Utilization	70.8%			ICU Level of Service			C									
Analysis Period (min)	15															
c Critical Lane Group																

HCM Unsignalized Intersection Capacity Analysis

2: W. Front Street & Central Avenue



















ROUTE 62
Timing Plan: 2030 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↔↕	↖	
Volume (veh/h)	0	0	65	326	52	0
Sign Control	Free			Free	Stop	
Grade	-4%			1%	-3%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.68	0.68
Hourly flow rate (vph)	0	0	85	426	85	0
Pedestrians	1				1	
Lane Width (ft)	0.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	380			386		
pX, platoon unblocked						
vC, conflicting volume			1		385	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		385	1
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		85	100
cM capacity (veh/h)			1604		565	1088
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	227	284	85			
Volume Left	85	0	85			
Volume Right	0	0	0			
cSH	1604	1700	565			
Volume to Capacity	0.05	0.17	0.15			
Queue Length 95th (ft)	4	0	13			
Control Delay (s)	3.0	0.0	12.5			
Lane LOS	A		B			
Approach Delay (s)	1.3		12.5			
Approach LOS			B			
Intersection Summary						
Average Delay		2.9				
Intersection Capacity Utilization		65.9%	ICU Level of Service	C		
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

3: E. Front Street & Veterans Memorial Bridge

ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	6	235	323	0	133	0	0	289	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	11	12	12	12	12	12	12	15
Grade (%)		-1%			1%			-1%			-2%	
Total Lost time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.98		1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)				1627	1774	1527		1910			1919	1769
Flt Permitted				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)				1627	1774	1527		1910			1919	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.71	0.71	0.71	0.89	0.89	0.89
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	0	0	0	7	280	386	0	208	0	0	360	203
RTOR Reduction (vph)	0	0	0	0	0	190	0	0	0	0	0	134
Lane Group Flow (vph)	0	0	0	7	280	196	0	208	0	0	360	69
Confl. Peds. (#/hr)	1					1	2		3	3		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm						Perm
Protected Phases					8			2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				33.0	33.0	33.0		22.0			22.0	22.0
Effective Green, g (s)				33.0	33.0	33.0		22.0			22.0	22.0
Actuated g/C Ratio				0.51	0.51	0.51		0.34			0.34	0.34
Clearance Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)				826	901	775		646			650	599
v/s Ratio Prot					c0.16			0.11			c0.19	
v/s Ratio Perm				0.00		0.13						0.04
v/c Ratio				0.01	0.31	0.25		0.32			0.55	0.11
Uniform Delay, d1				7.9	9.4	9.0		16.0			17.5	14.8
Progression Factor				1.00	1.00	1.00		1.05			1.00	1.00
Incremental Delay, d2				0.0	0.9	0.8		1.3			3.4	0.4
Delay (s)				7.9	10.3	9.8		18.0			20.9	15.2
Level of Service				A	B	A		B			C	B
Approach Delay (s)		0.0			10.0			18.0			18.8	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			14.6				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			64.0%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: E. Front Street & Wilson Avenue



















ROUTE 62
Timing Plan: 2030 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↖↗	
Volume (veh/h)	0	0	0	415	159	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.76	0.71	0.71
Hourly flow rate (vph)	0	0	0	606	249	0
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			1		304	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		304	1
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		62	100
cM capacity (veh/h)			1619		657	1075
Direction, Lane #	WB 1	WB 2	NB 1	NB 2		
Volume Total	303	303	124	124		
Volume Left	0	0	124	124		
Volume Right	0	0	0	0		
cSH	1700	1700	657	657		
Volume to Capacity	0.18	0.18	0.19	0.19		
Queue Length 95th (ft)	0	0	17	17		
Control Delay (s)	0.0	0.0	11.7	11.7		
Lane LOS			B	B		
Approach Delay (s)	0.0		11.7			
Approach LOS			B			
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			49.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: W. 1st Street & Petroleum Street

















ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	153	6	0	0	0	7	24	1	141	34	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	13	13	12	12	14	12	10	10	12
Grade (%)		-2%			3%			-5%			7%	
Total Lost time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	0.87	
Flt Protected	0.95	1.00						0.99		0.95	1.00	
Satd. Flow (prot)	1666	1761						1985		1610	1470	
Flt Permitted	0.95	1.00						0.87		0.95	1.00	
Satd. Flow (perm)	1666	1761						1752		1610	1470	
Peak-hour factor, PHF	0.86	0.86	0.86	0.92	0.92	0.92	0.57	0.57	0.57	0.77	0.77	0.77
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	205	197	8	0	0	0	14	47	2	203	49	370
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	142	0
Lane Group Flow (vph)	205	205	0	0	0	0	0	63	0	203	277	0
Confl. Peds. (#/hr)	5		1	1		5			3	3		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm						Perm			Prot		
Protected Phases		4						2		1	6	
Permitted Phases	4						2					
Actuated Green, G (s)	15.0	15.0						15.0		20.0	40.0	
Effective Green, g (s)	15.0	15.0						15.0		20.0	40.0	
Actuated g/C Ratio	0.23	0.23						0.23		0.31	0.62	
Clearance Time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Grp Cap (vph)	384	406						404		495	905	
v/s Ratio Prot		0.12								c0.13	c0.19	
v/s Ratio Perm	c0.12							0.04				
v/c Ratio	0.53	0.50						0.16		0.41	0.31	
Uniform Delay, d1	21.9	21.8						19.9		17.8	5.9	
Progression Factor	1.00	1.00						1.00		1.19	3.56	
Incremental Delay, d2	5.2	4.4						0.8		2.3	0.8	
Delay (s)	27.2	26.2						20.8		23.5	21.9	
Level of Service	C	C						C		C	C	
Approach Delay (s)		26.7			0.0			20.8			22.4	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM Average Control Delay			23.9				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			54.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: W. 1st Street & Central Avenue
















ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	275	13	0	0	0	0	48	87	15	49	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	13	12	10	10	12
Grade (%)		-3%			1%			0%			3%	
Total Lost time (s)		5.0						5.0		5.0	5.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		1.00	1.00	
Frt		0.99						0.91		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3106						1775		1565	1648	
Flt Permitted		1.00						1.00		0.59	1.00	
Satd. Flow (perm)		3106						1775		966	1648	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.81	0.81	0.81	0.76	0.76	0.76
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	17	351	17	0	0	0	0	66	119	22	72	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	101	0	0	0	0
Lane Group Flow (vph)	0	381	0	0	0	0	0	84	0	22	72	0
Confl. Peds. (#/hr)	1		5	5		1	2					2
Heavy Vehicles (%)	9%	9%	9%	2%	2%	2%	1%	1%	1%	6%	6%	6%
Turn Type	Perm						Perm					
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		40.1						8.7		8.7	8.7	
Effective Green, g (s)		40.1						8.7		8.7	8.7	
Actuated g/C Ratio		0.68						0.15		0.15	0.15	
Clearance Time (s)		5.0						5.0		5.0	5.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2118						263		143	244	
v/s Ratio Prot								c0.05			0.04	
v/s Ratio Perm		0.12								0.02		
v/c Ratio		0.18						0.32		0.15	0.30	
Uniform Delay, d1		3.4						22.4		21.8	22.3	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.7		0.5	0.7	
Delay (s)		3.6						23.1		22.3	23.0	
Level of Service		A						C		C	C	
Approach Delay (s)		3.6			0.0			23.1			22.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		11.7						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.20										
Actuated Cycle Length (s)		58.8						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		50.4%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: E. 1st Street & State Street


















ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	260	7	0	0	0	0	0	0	284	12	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	12	12	12	13	12	12	14	12
Grade (%)		1%			-1%			-1%			-3%	
Total Lost time (s)		5.0								5.0	5.0	
Lane Util. Factor		0.95								1.00	1.00	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		1.00								1.00	1.00	
Flt Protected		0.98								0.95	1.00	
Satd. Flow (prot)		3562								1743	1959	
Flt Permitted		0.98								0.95	1.00	
Satd. Flow (perm)		3562								1743	1959	
Peak-hour factor, PHF	0.99	0.99	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	155	292	8	0	0	0	0	0	0	362	15	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	453	0	0	0	0	0	0	0	362	15	0
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Perm						Perm					
Protected Phases		4									6	
Permitted Phases	4									6		
Actuated Green, G (s)		22.0								33.0	33.0	
Effective Green, g (s)		22.0								33.0	33.0	
Actuated g/C Ratio		0.34								0.51	0.51	
Clearance Time (s)		5.0								5.0	5.0	
Lane Grp Cap (vph)		1206								885	995	
v/s Ratio Prot											0.01	
v/s Ratio Perm		0.13								c0.21		
v/c Ratio		0.38								0.41	0.02	
Uniform Delay, d1		16.3								9.9	7.9	
Progression Factor		1.00								0.09	0.07	
Incremental Delay, d2		0.9								1.2	0.0	
Delay (s)		17.2								2.1	0.6	
Level of Service		B								A	A	
Approach Delay (s)		17.2			0.0			0.0			2.0	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM Average Control Delay			10.3				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			76.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

8: E. 1st Street & Wilson Avenue

ROUTE 62
Timing Plan: 2030 AM




																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations																											
Volume (veh/h)	12	374	150	0	0	0	0	147	2	0	0	0															
Sign Control	Free			Free			Stop			Stop																	
Grade	0%			0%			0%			0%																	
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92															
Hourly flow rate (vph)	14	432	173	0	0	0	0	177	2	0	0	0															
Pedestrians	1			1			2																				
Lane Width (ft)	12.0			0.0			12.0																				
Walking Speed (ft/s)	4.0			4.0			4.0																				
Percent Blockage	0			0			0																				
Right turn flare (veh)																											
Median type	None			None																							
Median storage (veh)																											
Upstream signal (ft)	351																										
pX, platoon unblocked				0.94				0.94	0.94	0.94	0.94	0.94															
vC, conflicting volume	0	608			463			462	435	552	636	1															
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	0	555			402			401	373	497	585	1															
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2															
tC, 2 stage (s)																											
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3															
p0 queue free %	99	100			100			65	100	100	100	100															
cM capacity (veh/h)	1617	957			522			502	635	328	395	1083															
Direction, Lane #	EB 1	EB 2	EB 3	NB 1	NB 2																						
Volume Total	14	432	173	118	62																						
Volume Left	14	0	0	0	0																						
Volume Right	0	0	173	0	2																						
cSH	1617	1700	1700	502	507																						
Volume to Capacity	0.01	0.25	0.10	0.24	0.12																						
Queue Length 95th (ft)	1	0	0	23	10																						
Control Delay (s)	7.2	0.0	0.0	14.4	13.1																						
Lane LOS	A				B																						
Approach Delay (s)	0.2				13.9																						
Approach LOS				B																							
Intersection Summary																											
Average Delay	3.3																										
Intersection Capacity Utilization	44.1%			ICU Level of Service					A																		
Analysis Period (min)	15																										

HCM Unsignalized Intersection Capacity Analysis

10: Imperial Street & E. Front Street

ROUTE 62
Timing Plan: 2030 AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	12	1	404	370	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.82	0.82	0.86	0.86
Hourly flow rate (vph)	19	21	1	547	478	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	758	243	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	758	243	485			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	97	100			
cM capacity (veh/h)	347	764	1060			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	40	184	365	318	167	
Volume Left	19	1	0	0	0	
Volume Right	21	0	0	0	8	
cSH	485	1060	1700	1700	1700	
Volume to Capacity	0.08	0.00	0.21	0.19	0.10	
Queue Length 95th (ft)	7	0	0	0	0	
Control Delay (s)	13.1	0.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	13.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			23.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: E.2nd Street & E. Front Street

ROUTE 62
Timing Plan: 2030 AM













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	48	48	401	382	0
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.93	0.93	0.81	0.81	0.92	0.92
Hourly flow rate (vph)	5	57	66	550	461	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1142	461	461			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1142	461	461			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	90	94			
cM capacity (veh/h)	206	595	1095			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	57	66	550	461	0
Volume Left	5	0	66	0	0	0
Volume Right	0	57	0	0	0	0
cSH	206	595	1095	1700	1700	1700
Volume to Capacity	0.02	0.10	0.06	0.32	0.27	0.00
Queue Length 95th (ft)	2	8	5	0	0	0
Control Delay (s)	22.9	11.7	8.5	0.0	0.0	0.0
Lane LOS	C	B	A			
Approach Delay (s)	12.6		0.9		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			39.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: E.2nd Street & Wilson Avenue

















ROUTE 62
Timing Plan: 2030 AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	23	100	47	25	103	32
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.78	0.78	0.76	0.76
Hourly flow rate (vph)	30	131	67	36	150	47
Pedestrians	4		2			7
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		0			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420	78			106	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	78			106	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	87			90	
cM capacity (veh/h)	527	974			1480	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	161	67	36	197		
Volume Left	30	0	0	150		
Volume Right	131	0	36	0		
cSH	841	1700	1700	1480		
Volume to Capacity	0.19	0.04	0.02	0.10		
Queue Length 95th (ft)	18	0	0	8		
Control Delay (s)	10.3	0.0	0.0	6.1		
Lane LOS	B			A		
Approach Delay (s)	10.3	0.0		6.1		
Approach LOS	B					
Intersection Summary						
Average Delay		6.2				
Intersection Capacity Utilization		31.3%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: E.2nd Street & Pine Street

















ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	120	1	0	97	3	3	0	1	3	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	1.00	1.00	1.00	0.96	0.96	0.96
Hourly flow rate (vph)	5	153	1	0	116	4	3	0	1	3	0	28
Pedestrians		1			1			2			7	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	126			156			312	292	157	291	291	126
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	126			156			312	292	157	291	291	126
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	99	100	97
cM capacity (veh/h)	1458			1427			618	615	892	655	616	924
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	159	119	4	31								
Volume Left	5	0	3	3								
Volume Right	1	4	1	28								
cSH	1458	1427	669	884								
Volume to Capacity	0.00	0.00	0.01	0.04								
Queue Length 95th (ft)	0	0	1	3								
Control Delay (s)	0.3	0.0	10.4	9.2								
Lane LOS	A		B	A								
Approach Delay (s)	0.3	0.0	10.4	9.2								
Approach LOS			B	A								
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			21.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Imperial Street & E.2nd Street

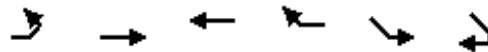
ROUTE 62
Timing Plan: 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	6	2	0	0	9	0	69	2	5	58	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.46	0.46	0.46	0.75	0.75	0.75	0.68	0.68	0.68	0.89	0.89	0.89
Hourly flow rate (vph)	12	14	5	0	0	13	0	113	3	6	72	1
Pedestrians		1			2						4	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	218	204	74	214	203	120	75			118		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218	204	74	214	203	120	75			118		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	100	100	100	99	100			100		
cM capacity (veh/h)	725	691	993	727	692	932	1530			1480		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	31	13	116	80								
Volume Left	12	0	0	6								
Volume Right	5	13	3	1								
cSH	739	932	1530	1480								
Volume to Capacity	0.04	0.01	0.00	0.00								
Queue Length 95th (ft)	3	1	0	0								
Control Delay (s)	10.1	8.9	0.0	0.6								
Lane LOS	B	A		A								
Approach Delay (s)	10.1	8.9	0.0	0.6								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			20.4%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

19: E. 1st Street & E. Front Street

ROUTE 62
Timing Plan: 2030 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑		↑↑		
Volume (veh/h)	0	376	0	415	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	454	0	501	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		618				
pX, platoon unblocked						
vC, conflicting volume	501				227	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	501				227	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1060				741	1084
Direction, Lane #	EB 1	EB 2	WB 1	WB 2		
Volume Total	227	227	250	250		
Volume Left	0	0	0	0		
Volume Right	0	0	250	250		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.13	0.13	0.15	0.15		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			19.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

121: E. 2nd Alley & Wilson Avenue

ROUTE 62
Timing Plan: 2030 AM





















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	0	3	143	135	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.78	0.78	0.76	0.76
Hourly flow rate (vph)	4	0	4	204	197	7
Pedestrians				2	7	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420	203	204			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	203	204			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	589	842	1373			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	208	204			
Volume Left	4	4	0			
Volume Right	0	0	7			
cSH	589	1373	1700			
Volume to Capacity	0.01	0.00	0.12			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	11.2	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.2	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			21.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: W. Front Street & Petroleum Street

ROUTE 62
Timing Plan: 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	0	7	196	0	272	0	202	0	0	502	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	3%			4%			-3%			0%		
Total Lost time (s)	5.0		5.0	5.0		5.0		5.0			5.0	
Lane Util. Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Frpb, ped/bikes	1.00		0.99	1.00		0.97		1.00			1.00	
Flpb, ped/bikes	0.99		1.00	1.00		1.00		1.00			1.00	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1765		1567	1747		1524		1909			1881	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	1765		1567	1747		1524		1909			1881	
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	44	0	10	256	0	355	0	270	0	0	606	0
RTOR Reduction (vph)	0	0	6	0	0	197	0	0	0	0	0	0
Lane Group Flow (vph)	44	0	4	256	0	158	0	270	0	0	606	0
Confl. Peds. (#/hr)	5		3	3		5	2		3	3		2
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	custom		custom		custom		custom					
Protected Phases							2				6	
Permitted Phases	4		4		8		8					
Actuated Green, G (s)	40.0		40.0		40.0		40.0		40.0		40.0	
Effective Green, g (s)	40.0		40.0		40.0		40.0		40.0		40.0	
Actuated g/C Ratio	0.44		0.44		0.44		0.44		0.44		0.44	
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0		5.0	
Lane Grp Cap (vph)	784		696		776		677		848		836	
v/s Ratio Prot							0.14				c0.32	
v/s Ratio Perm	0.02		0.00		c0.15		0.10					
v/c Ratio	0.06		0.01		0.33		0.23		0.32		0.72	
Uniform Delay, d1	14.2		13.9		16.3		15.5		16.2		20.5	
Progression Factor	1.00		1.00		0.83		0.49		0.74		1.00	
Incremental Delay, d2	0.1		0.0		1.1		0.8		0.9		5.4	
Delay (s)	14.4		13.9		14.5		8.4		12.9		25.9	
Level of Service	B		B		B		A		B		C	
Approach Delay (s)	14.3				11.0				12.9		25.9	
Approach LOS	B				B				B		C	
Intersection Summary												
HCM Average Control Delay	17.3			HCM Level of Service					B			
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)					10.0			
Intersection Capacity Utilization	91.7%			ICU Level of Service					F			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: W. Front Street & Central Avenue



















ROUTE 62
Timing Plan: 2030 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↔↕	↖	
Volume (veh/h)	0	0	167	388	82	0
Sign Control	Free			Free	Stop	
Grade	-4%			1%	-3%	
Peak Hour Factor	0.92	0.92	0.91	0.91	0.79	0.79
Hourly flow rate (vph)	0	0	204	473	115	0
Pedestrians	3				1	
Lane Width (ft)	0.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	380			386		
pX, platoon unblocked						
vC, conflicting volume			1		648	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		648	1
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		68	100
cM capacity (veh/h)			1619		356	1088
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	361	316	115			
Volume Left	204	0	115			
Volume Right	0	0	0			
cSH	1619	1700	356			
Volume to Capacity	0.13	0.19	0.32			
Queue Length 95th (ft)	11	0	34			
Control Delay (s)	4.7	0.0	19.9			
Lane LOS	A		C			
Approach Delay (s)	2.5		19.9			
Approach LOS			C			
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			80.8%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

3: E. Front Street & Veterans Memorial Bridge







ROUTE 62
Timing Plan: 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	19	309	430	0	137	0	0	415	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	11	12	12	12	12	12	12	15
Grade (%)		-1%			1%			-1%			-2%	
Total Lost time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	0.98
Flpb, ped/bikes				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)				1655	1809	1591		1891			1900	1735
Flt Permitted				0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)				1655	1809	1591		1891			1900	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.95
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	0	0	0	22	361	502	0	167	0	0	485	279
RTOR Reduction (vph)	0	0	0	0	0	279	0	0	0	0	0	155
Lane Group Flow (vph)	0	0	0	22	361	223	0	167	0	0	485	124
Confl. Peds. (#/hr)			2	2			9		21	21		9
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Perm		Perm						Perm
Protected Phases					8			2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				40.0	40.0	40.0		40.0			40.0	40.0
Effective Green, g (s)				40.0	40.0	40.0		40.0			40.0	40.0
Actuated g/C Ratio				0.44	0.44	0.44		0.44			0.44	0.44
Clearance Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)				736	804	707		840			844	771
v/s Ratio Prot					c0.20			0.09			c0.26	
v/s Ratio Perm				0.01		0.14						0.07
v/c Ratio				0.03	0.45	0.32		0.20			0.57	0.16
Uniform Delay, d1				14.1	17.4	16.2		15.2			18.7	15.0
Progression Factor				1.00	1.00	1.00		1.57			1.00	1.00
Incremental Delay, d2				0.1	1.8	1.2		0.5			2.8	0.4
Delay (s)				14.2	19.2	17.3		24.4			21.5	15.4
Level of Service				B	B	B		C			C	B
Approach Delay (s)		0.0			18.0			24.4			19.3	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM Average Control Delay			19.1				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			94.0%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: E. Front Street & Wilson Avenue



















ROUTE 62
Timing Plan: 2030 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Volume (veh/h)	0	0	0	463	285	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	0	0	0	571	377	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			0		286	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		286	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		45	100
cM capacity (veh/h)			1622		684	1088
Direction, Lane #	WB 1	WB 2	NB 1	NB 2		
Volume Total	286	286	188	188		
Volume Left	0	0	188	188		
Volume Right	0	0	0	0		
cSH	1700	1700	684	684		
Volume to Capacity	0.17	0.17	0.28	0.28		
Queue Length 95th (ft)	0	0	28	28		
Control Delay (s)	0.0	0.0	12.2	12.2		
Lane LOS			B	B		
Approach Delay (s)	0.0		12.2			
Approach LOS			B			
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization			61.3%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: W. 1st Street & Petroleum Street

















ROUTE 62
Timing Plan: 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	151	3	0	0	0	6	34	6	318	52	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	13	13	12	12	14	12	10	10	12
Grade (%)		-2%			3%			-5%			7%	
Total Lost time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	0.96	1.00						1.00		1.00	1.00	
Frt	1.00	1.00						0.98		1.00	0.87	
Flt Protected	0.95	1.00						0.99		0.95	1.00	
Satd. Flow (prot)	1619	1767						2020		1610	1474	
Flt Permitted	0.95	1.00						0.91		0.95	1.00	
Satd. Flow (perm)	1619	1767						1854		1610	1474	
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.68	0.68	0.68	0.94	0.94	0.94
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	241	210	4	0	0	0	10	56	10	376	61	403
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	157	0
Lane Group Flow (vph)	241	214	0	0	0	0	0	76	0	376	307	0
Confl. Peds. (#/hr)	13		3	3		13			9	9		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Perm						Perm			Prot		
Protected Phases				4						2		
Permitted Phases	4						2			1		
Actuated Green, G (s)	25.0	25.0						15.0		35.0	55.0	
Effective Green, g (s)	25.0	25.0						15.0		35.0	55.0	
Actuated g/C Ratio	0.28	0.28						0.17		0.39	0.61	
Clearance Time (s)	5.0	5.0						5.0		5.0	5.0	
Lane Grp Cap (vph)	450	491						309		626	901	
v/s Ratio Prot		0.12								c0.23	c0.21	
v/s Ratio Perm	c0.15							0.04				
v/c Ratio	0.54	0.44						0.25		0.60	0.34	
Uniform Delay, d1	27.6	26.7						32.6		21.9	8.6	
Progression Factor	1.00	1.00						1.00		1.21	5.07	
Incremental Delay, d2	4.5	2.8						1.9		3.4	0.8	
Delay (s)	32.1	29.5						34.5		30.0	44.5	
Level of Service	C	C						C		C	D	
Approach Delay (s)		30.9			0.0			34.5			38.0	
Approach LOS		C			A			C			D	
Intersection Summary												
HCM Average Control Delay			35.4				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			75.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: W. 1st Street & Central Avenue

ROUTE 62
Timing Plan: 2030 PM
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	395	55	0	0	0	0	48	83	80	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	13	12	10	10	12
Grade (%)		-3%			1%			0%			3%	
Total Lost time (s)		5.0						5.0		5.0	5.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						0.98		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		0.98						0.91		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3272						1746		1623	1729	
Flt Permitted		1.00						1.00		0.58	1.00	
Satd. Flow (perm)		3272						1746		986	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.79	0.79	0.79
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	31	477	66	0	0	0	0	63	110	112	115	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	86	0	0	0	0
Lane Group Flow (vph)	0	566	0	0	0	0	0	87	0	112	115	0
Confl. Peds. (#/hr)	14		7	7			14	13		11	11	13
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm					Perm						
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		50.3						12.9		12.9	12.9	
Effective Green, g (s)		50.3						12.9		12.9	12.9	
Actuated g/C Ratio		0.69						0.18		0.18	0.18	
Clearance Time (s)		5.0						5.0		5.0	5.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2248						308		174	305	
v/s Ratio Prot								0.05			0.07	
v/s Ratio Perm		0.17								c0.11		
v/c Ratio		0.25						0.28		0.64	0.38	
Uniform Delay, d1		4.3						26.1		28.0	26.6	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.3						0.5		7.9	0.8	
Delay (s)		4.6						26.6		35.9	27.4	
Level of Service		A						C		D	C	
Approach Delay (s)		4.6			0.0			26.6			31.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			14.8				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			73.2				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			65.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: E. 1st Street & State Street

ROUTE 62

Timing Plan: 2030 PM


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	390	23	0	0	0	0	0	0	383	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	12	12	12	13	12	12	14	12
Grade (%)		1%			-1%			-1%			-3%	
Total Lost time (s)		5.0								5.0	5.0	
Lane Util. Factor		0.95								1.00	1.00	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								0.99	1.00	
Frt		0.99								1.00	1.00	
Flt Protected		0.99								0.95	1.00	
Satd. Flow (prot)		3596								1793	2037	
Flt Permitted		0.99								0.95	1.00	
Satd. Flow (perm)		3596								1793	2037	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Growth Factor (vph)	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	169	465	27	0	0	0	0	0	0	443	51	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	658	0	0	0	0	0	0	0	443	51	0
Confl. Peds. (#/hr)	4		6	6		4	12		13	14		12
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Perm					Perm						
Protected Phases		4									6	
Permitted Phases	4									6		
Actuated Green, G (s)		33.0								47.0	47.0	
Effective Green, g (s)		33.0								47.0	47.0	
Actuated g/C Ratio		0.37								0.52	0.52	
Clearance Time (s)		5.0								5.0	5.0	
Lane Grp Cap (vph)		1319								936	1064	
v/s Ratio Prot											0.03	
v/s Ratio Perm		0.18								c0.25		
v/c Ratio		0.50								0.47	0.05	
Uniform Delay, d1		22.1								13.6	10.5	
Progression Factor		1.00								0.10	0.14	
Incremental Delay, d2		1.3								1.4	0.1	
Delay (s)		23.4								2.8	1.5	
Level of Service		C								A	A	
Approach Delay (s)		23.4			0.0			0.0			2.7	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM Average Control Delay			14.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				10.0		
Intersection Capacity Utilization			106.7%			ICU Level of Service				G		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

8: E. 1st Street & Wilson Avenue

ROUTE 62
Timing Plan: 2030 PM




																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations																											
Volume (veh/h)	28	488	265	0	0	0	0	257	2	0	0	0															
Sign Control	Free			Free			Stop			Stop																	
Grade	0%			0%			0%			0%																	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92															
Hourly flow rate (vph)	33	570	310	0	0	0	0	352	3	0	0	0															
Pedestrians	5			4			4																				
Lane Width (ft)	12.0			0.0			12.0																				
Walking Speed (ft/s)	4.0			4.0			4.0																				
Percent Blockage	0			0			0																				
Right turn flare (veh)																											
Median type	None			None																							
Median storage (veh)																											
Upstream signal (ft)	351																										
pX, platoon unblocked				0.81			0.81			0.81	0.81	0.81															
vC, conflicting volume	0	884			645			640	578	818	949	5															
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	0	739			443			437	361	658	820	5															
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2															
tC, 2 stage (s)																											
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3															
p0 queue free %	98	100			100			13	100	100	100	100															
cM capacity (veh/h)	1630	700			415			407	553	79	245	1074															
Direction, Lane #	EB 1	EB 2	EB 3	NB 1	NB 2																						
Volume Total	33	570	310	235	120																						
Volume Left	33	0	0	0	0																						
Volume Right	0	0	310	0	3																						
cSH	1630	1700	1700	407	409																						
Volume to Capacity	0.02	0.34	0.18	0.58	0.29																						
Queue Length 95th (ft)	2	0	0	88	30																						
Control Delay (s)	7.3	0.0	0.0	25.3	17.4																						
Lane LOS	A			D	C																						
Approach Delay (s)	0.3	22.6																									
Approach LOS				C																							
Intersection Summary																											
Average Delay	6.5																										
Intersection Capacity Utilization	56.0%			ICU Level of Service					B																		
Analysis Period (min)	15																										

HCM Unsignalized Intersection Capacity Analysis

10: Imperial Street & E. Front Street

ROUTE 62
Timing Plan: 2030 PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	36	18	10	427	472	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	56	28	13	539	563	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	866	289	579			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	289	579			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	96	99			
cM capacity (veh/h)	293	713	991			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	84	192	359	376	203	
Volume Left	56	13	0	0	0	
Volume Right	28	0	0	0	16	
cSH	364	991	1700	1700	1700	
Volume to Capacity	0.23	0.01	0.21	0.22	0.12	
Queue Length 95th (ft)	22	1	0	0	0	
Control Delay (s)	17.8	0.7	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	17.8	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			31.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: E.2nd Street & E. Front Street

ROUTE 62
Timing Plan: 2030 PM













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	82	89	433	484	6
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.69	0.69	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	6	132	107	522	618	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1355	618	625			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1355	618	625			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	73	89			
cM capacity (veh/h)	148	493	961			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	6	132	107	522	618	8
Volume Left	6	0	107	0	0	0
Volume Right	0	132	0	0	0	8
cSH	148	493	961	1700	1700	1700
Volume to Capacity	0.04	0.27	0.11	0.31	0.36	0.00
Queue Length 95th (ft)	3	27	9	0	0	0
Control Delay (s)	30.4	14.9	9.2	0.0	0.0	0.0
Lane LOS	D	B	A			
Approach Delay (s)	15.7		1.6		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			47.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: E.2nd Street & Wilson Avenue

















ROUTE 62
Timing Plan: 2030 PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	82	194	60	72	229	40
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	98	232	71	85	282	49
Pedestrians	5					17
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	4.0					4.0
Percent Blockage	0					1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	690	93			161	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	93			161	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	70	76			80	
cM capacity (veh/h)	331	952			1425	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	329	71	85	332		
Volume Left	98	0	0	282		
Volume Right	232	0	85	0		
cSH	611	1700	1700	1425		
Volume to Capacity	0.54	0.04	0.05	0.20		
Queue Length 95th (ft)	80	0	0	18		
Control Delay (s)	17.6	0.0	0.0	7.2		
Lane LOS	C			A		
Approach Delay (s)	17.6	0.0		7.2		
Approach LOS	C					
Intersection Summary						
Average Delay		10.0				
Intersection Capacity Utilization		49.2%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: E.2nd Street & Pine Street

















ROUTE 62
Timing Plan: 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	271	8	4	241	8	2	1	6	18	4	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.99	0.99	0.99	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	21	338	10	4	270	9	3	1	9	25	6	58
Pedestrians		3						5			34	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	313			353			738	713	348	713	713	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	313			353			738	713	348	713	713	312
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			99	100	99	92	98	92
cM capacity (veh/h)	1223			1212			291	341	697	321	341	711
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	369	284	13	89								
Volume Left	21	4	3	25								
Volume Right	10	9	9	58								
cSH	1223	1212	488	504								
Volume to Capacity	0.02	0.00	0.03	0.18								
Queue Length 95th (ft)	1	0	2	16								
Control Delay (s)	0.6	0.2	12.6	13.7								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.6	0.2	12.6	13.7								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			40.8%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Imperial Street & E.2nd Street

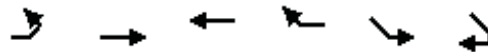
ROUTE 62
Timing Plan: 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	6	5	6	11	40	4	140	7	12	173	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.66	0.66	0.66	0.97	0.97	0.97
Hourly flow rate (vph)	28	9	7	9	16	59	7	235	12	14	198	18
Pedestrians		1						4			3	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	561	496	212	505	500	244	217			247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561	496	212	505	500	244	217			247		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	98	99	98	97	93	100			99		
cM capacity (veh/h)	392	470	830	462	468	797	1363			1330		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	44	84	254	230								
Volume Left	28	9	7	14								
Volume Right	7	59	12	18								
cSH	446	658	1363	1330								
Volume to Capacity	0.10	0.13	0.00	0.01								
Queue Length 95th (ft)	8	11	0	1								
Control Delay (s)	14.0	11.3	0.2	0.5								
Lane LOS	B	B	A	A								
Approach Delay (s)	14.0	11.3	0.2	0.5								
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			32.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

19: E. 1st Street & E. Front Street

ROUTE 62
Timing Plan: 2030 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑		↑↑		
Volume (veh/h)	0	376	0	415	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	454	0	501	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		618				
pX, platoon unblocked						
vC, conflicting volume	501				227	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	501				227	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1060				741	1084
Direction, Lane #	EB 1	EB 2	WB 1	WB 2		
Volume Total	227	227	250	250		
Volume Left	0	0	0	0		
Volume Right	0	0	250	250		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.13	0.13	0.15	0.15		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			19.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

121: E. 2nd Alley & Wilson Avenue

ROUTE 62
Timing Plan: 2030 PM



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	3	248	264	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	9	9	4	293	326	2
Pedestrians	3				17	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	647	330	331			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647	330	331			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	430	715	1237			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	18	296	328			
Volume Left	9	4	0			
Volume Right	9	0	2			
cSH	537	1237	1700			
Volume to Capacity	0.03	0.00	0.19			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	11.9	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.9	0.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		27.1%		ICU Level of Service		A
Analysis Period (min)		15				

2009 3-Lane Alternative












HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

8: E. 1st Street & Wilson Avenue
2009 AM 3-lane Wilson to East 2nd Ave

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Volume (veh/h)	12	374	150	0	0	0	0	147	2	0	0	0			
Sign Control	Free			Free			Stop			Stop					
Grade	0%			0%			0%			0%					
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Hourly flow rate (vph)	12	390	156	0	0	0	0	160	2	0	0	0			
Pedestrians	1			1			2								
Lane Width (ft)	12.0			0.0			12.0								
Walking Speed (ft/s)	4.0			4.0			4.0								
Percent Blockage	0			0			0								
Right turn flare (veh)															
Median type	None			None											
Median storage (veh)															
Upstream signal (ft)	351														
pX, platoon unblocked				0.97			0.97			0.97	0.97	0.97			
vC, conflicting volume	0				392			418			417	393	498	417	1
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	0				355			382			381	356	465	381	1
tC, single (s)	4.1				4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)															
tF (s)	2.2				2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99				100			100			70	100	100	100	100
cM capacity (veh/h)	1617				1163			552			529	665	373	529	1083
Direction, Lane #	EB 1	EB 2	EB 3	NB 1											
Volume Total	12	390	156	162											
Volume Left	12	0	0	0											
Volume Right	0	0	156	2											
cSH	1617	1700	1700	531											
Volume to Capacity	0.01	0.23	0.09	0.31											
Queue Length 95th (ft)	1	0	0	32											
Control Delay (s)	7.2	0.0	0.0	14.7											
Lane LOS	A				B										
Approach Delay (s)	0.2				14.7										
Approach LOS				B											
Intersection Summary															
Average Delay				3.4											
Intersection Capacity Utilization				54.2%			ICU Level of Service			A					
Analysis Period (min)				15											











HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

11: E.2nd Street & E. Front Street
2009 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	48	48	401	382	0
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.93	0.93	0.81	0.81	0.92	0.92
Hourly flow rate (vph)	4	52	59	495	415	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1029	415	415			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1029	415	415			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	92	95			
cM capacity (veh/h)	243	631	1138			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	4	52	59	495	415	
Volume Left	4	0	59	0	0	
Volume Right	0	52	0	0	0	
cSH	243	631	1138	1700	1700	
Volume to Capacity	0.02	0.08	0.05	0.29	0.24	
Queue Length 95th (ft)	1	7	4	0	0	
Control Delay (s)	20.1	11.2	8.3	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s)	11.9		0.9		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			36.8%	ICU Level of Service	A	
Analysis Period (min)			15			









HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

10: Imperial Street & E. Front Street
2009 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	12	1	404	370	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.82	0.82	0.86	0.86
Hourly flow rate (vph)	17	19	1	493	430	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	929	434	437			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	929	434	437			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	97	100			
cM capacity (veh/h)	299	626	1112			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	36	1	493	437		
Volume Left	17	1	0	0		
Volume Right	19	0	0	7		
cSH	411	1112	1700	1700		
Volume to Capacity	0.09	0.00	0.29	0.26		
Queue Length 95th (ft)	7	0	0	0		
Control Delay (s)	14.6	8.2	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	14.6	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			31.3%	ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

4: E. Front Street & Wilson Avenue
2009 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	415	159	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.76	0.71	0.71
Hourly flow rate (vph)	0	0	0	546	224	0
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			1		547	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		547	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		55	100
cM capacity (veh/h)			1620		494	1077
Direction, Lane #	WB 1	NB 1				
Volume Total	546	224				
Volume Left	0	224				
Volume Right	0	0				
cSH	1700	494				
Volume to Capacity	0.32	0.45				
Queue Length 95th (ft)	0	58				
Control Delay (s)	0.0	18.2				
Lane LOS		C				
Approach Delay (s)	0.0	18.2				
Approach LOS		C				
Intersection Summary						
Average Delay		5.3				
Intersection Capacity Utilization		59.6%	ICU Level of Service	B		
Analysis Period (min)		15				












HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

8: E. 1st Street & Wilson Avenue
2009 PM 3-lane Wilson to E.2nd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	488	265	0	0	0	0	257	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92
Hourly flow rate (vph)	29	514	279	0	0	0	0	317	2	0	0	0
Pedestrians		5			4			4				
Lane Width (ft)		12.0			0.0			12.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		351										
pX, platoon unblocked				0.82			0.82	0.82	0.82	0.82	0.82	
vC, conflicting volume	0			518			582	577	522	738	577	5
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			308			386	380	313	575	380	5
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	29	100	100	100	100
cM capacity (veh/h)	1630			1029			462	447	599	147	446	1074
Direction, Lane #	EB 1	EB 2	EB 3	NB 1								
Volume Total	29	607	186	320								
Volume Left	29	0	0	0								
Volume Right	0	93	186	2								
cSH	1630	1700	1700	448								
Volume to Capacity	0.02	0.36	0.11	0.71								
Queue Length 95th (ft)	1	0	0	139								
Control Delay (s)	7.2	0.0	0.0	30.7								
Lane LOS	A			D								
Approach Delay (s)	0.3			30.7								
Approach LOS				D								
Intersection Summary												
Average Delay			8.8									
Intersection Capacity Utilization			73.6%	ICU Level of Service						D		
Analysis Period (min)			15									











HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

11: E.2nd Street & E. Front Street
2009 PM 3-lane Wilson to E.2nd

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	82	89	433	484	6
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.69	0.69	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	6	119	97	471	556	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1224	560	563			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1224	560	563			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	78	90			
cM capacity (veh/h)	181	532	1013			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	6	119	97	471	563	
Volume Left	6	0	97	0	0	
Volume Right	0	119	0	0	7	
cSH	181	532	1013	1700	1700	
Volume to Capacity	0.03	0.22	0.10	0.28	0.33	
Queue Length 95th (ft)	2	21	8	0	0	
Control Delay (s)	25.5	13.7	8.9	0.0	0.0	
Lane LOS	D	B	A			
Approach Delay (s)	14.3		1.5		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			44.1%	ICU Level of Service		A
Analysis Period (min)			15			









HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

10: Imperial Street & E. Front Street
2009 PM 3-lane Wilson to E.2nd

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	36	18	10	427	472	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	51	25	11	485	508	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1022	515	522			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1022	515	522			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	96	99			
cM capacity (veh/h)	261	564	1045			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	76	11	485	522		
Volume Left	51	11	0	0		
Volume Right	25	0	0	14		
cSH	318	1045	1700	1700		
Volume to Capacity	0.24	0.01	0.29	0.31		
Queue Length 95th (ft)	23	1	0	0		
Control Delay (s)	19.9	8.5	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	19.9	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			35.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

















4: E. Front Street & Wilson Avenue
2009 PM 3-lane Wilson to E.2nd

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	463	285	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	0	0	0	514	339	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	406					
pX, platoon unblocked						
vC, conflicting volume			0		514	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		514	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		35	100
cM capacity (veh/h)			1623		522	1088
Direction, Lane #	WB 1	NB 1				
Volume Total	514	339				
Volume Left	0	339				
Volume Right	0	0				
cSH	1700	522				
Volume to Capacity	0.30	0.65				
Queue Length 95th (ft)	0	116				
Control Delay (s)	0.0	23.8				
Lane LOS		C				
Approach Delay (s)	0.0	23.8				
Approach LOS		C				
Intersection Summary						
Average Delay		9.5				
Intersection Capacity Utilization		79.8%	ICU Level of Service		D	
Analysis Period (min)		15				

2030 3-Lane Alternative












HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

8: E. 1st Street & Wilson Avenue
2030 AM 3-lane Wilson to East 2nd Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	374	150	0	0	0	0	147	2	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	432	173	0	0	0	0	177	2	0	0	0
Pedestrians	1			1			2					
Lane Width (ft)	12.0			0.0			12.0					
Walking Speed (ft/s)	4.0			4.0			4.0					
Percent Blockage	0			0			0					
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	351											
pX, platoon unblocked				0.94			0.94			0.94	0.94	0.94
vC, conflicting volume	0	434			463			462	435	552	462	1
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	372			402			401	373	497	401	1
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99	100			100			65	100	100	100	100
cM capacity (veh/h)	1617	1119			522			502	635	328	502	1083
Direction, Lane #	EB 1	EB 2	EB 3	NB 1								
Volume Total	14	432	173	180								
Volume Left	14	0	0	0								
Volume Right	0	0	173	2								
cSH	1617	1700	1700	504								
Volume to Capacity	0.01	0.25	0.10	0.36								
Queue Length 95th (ft)	1	0	0	40								
Control Delay (s)	7.2	0.0	0.0	16.1								
Lane LOS	A			C								
Approach Delay (s)	0.2			16.1								
Approach LOS				C								
Intersection Summary												
Average Delay	3.7											
Intersection Capacity Utilization	59.6%			ICU Level of Service					B			
Analysis Period (min)	15											











HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

11: E.2nd Street & E. Front Street
2030 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	48	48	401	382	0
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.93	0.93	0.81	0.81	0.92	0.92
Hourly flow rate (vph)	5	57	66	550	461	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1142	461	461			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1142	461	461			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	90	94			
cM capacity (veh/h)	206	595	1095			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	5	57	66	550	461	
Volume Left	5	0	66	0	0	
Volume Right	0	57	0	0	0	
cSH	206	595	1095	1700	1700	
Volume to Capacity	0.02	0.10	0.06	0.32	0.27	
Queue Length 95th (ft)	2	8	5	0	0	
Control Delay (s)	22.9	11.7	8.5	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s)	12.6		0.9		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			39.0%	ICU Level of Service		A
Analysis Period (min)			15			









HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

10: Imperial Street & E. Front Street
2030 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	12	1	404	370	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.82	0.82	0.86	0.86
Hourly flow rate (vph)	19	21	1	547	478	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1031	481	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1031	481	485			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	100			
cM capacity (veh/h)	260	589	1067			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	40	1	547	485		
Volume Left	19	1	0	0		
Volume Right	21	0	0	8		
cSH	367	1067	1700	1700		
Volume to Capacity	0.11	0.00	0.32	0.29		
Queue Length 95th (ft)	9	0	0	0		
Control Delay (s)	16.0	8.4	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	16.0	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			33.6%	ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

4: E. Front Street & Wilson Avenue
2030 AM 3-lane Wilson to East 2nd Ave

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	415	159	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.76	0.71	0.71
Hourly flow rate (vph)	0	0	0	606	249	0
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			1		607	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1		607	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		45	100
cM capacity (veh/h)			1620		456	1077
Direction, Lane #	WB 1	NB 1				
Volume Total	606	249				
Volume Left	0	249				
Volume Right	0	0				
cSH	1700	456				
Volume to Capacity	0.36	0.55				
Queue Length 95th (ft)	0	80				
Control Delay (s)	0.0	22.0				
Lane LOS		C				
Approach Delay (s)	0.0	22.0				
Approach LOS		C				
Intersection Summary						
Average Delay		6.4				
Intersection Capacity Utilization		65.0%		ICU Level of Service		C
Analysis Period (min)		15				












HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

8: E. 1st Street & Wilson Avenue
2030 PM 3-lane Wilson to East 2nd Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	488	265	0	0	0	0	257	2	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92
Hourly flow rate (vph)	33	570	310	0	0	0	0	352	3	0	0	0
Pedestrians	5			4			4					
Lane Width (ft)	12.0			0.0			12.0					
Walking Speed (ft/s)	4.0			4.0			4.0					
Percent Blockage	0			0			0					
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	351											
pX, platoon unblocked				0.81			0.81			0.81	0.81	0.81
vC, conflicting volume	0	574			645			640	578	818	640	5
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	356			443			437	361	658	437	5
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	98	100			100			13	100	100	100	100
cM capacity (veh/h)	1630	970			415			407	553	79	406	1074
Direction, Lane #	EB 1	EB 2	EB 3	NB 1								
Volume Total	33	570	310	355								
Volume Left	33	0	0	0								
Volume Right	0	0	310	3								
cSH	1630	1700	1700	408								
Volume to Capacity	0.02	0.34	0.18	0.87								
Queue Length 95th (ft)	2	0	0	218								
Control Delay (s)	7.3	0.0	0.0	50.4								
Lane LOS	A				F							
Approach Delay (s)	0.3				50.4							
Approach LOS				F								
Intersection Summary												
Average Delay	14.3											
Intersection Capacity Utilization	75.4%			ICU Level of Service			D					
Analysis Period (min)	15											











HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

11: E.2nd Street & E. Front Street
2030 PM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	82	89	433	484	6
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-3%	
Peak Hour Factor	0.69	0.69	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	6	132	107	522	618	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1359	621	625			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1359	621	625			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	73	89			
cM capacity (veh/h)	147	491	961			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	6	132	107	522	625	
Volume Left	6	0	107	0	0	
Volume Right	0	132	0	0	8	
cSH	147	491	961	1700	1700	
Volume to Capacity	0.04	0.27	0.11	0.31	0.37	
Queue Length 95th (ft)	3	27	9	0	0	
Control Delay (s)	30.5	15.0	9.2	0.0	0.0	
Lane LOS	D	C	A			
Approach Delay (s)	15.7		1.6		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			47.5%	ICU Level of Service		A
Analysis Period (min)			15			









HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

10: Imperial Street & E. Front Street
2030 PM 3-lane Wilson to East 2nd Ave

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	36	18	10	427	472	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	56	28	13	539	563	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1135	571	579			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1135	571	579			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	95	99			
cM capacity (veh/h)	223	524	995			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	84	13	539	579		
Volume Left	56	13	0	0		
Volume Right	28	0	0	16		
cSH	276	995	1700	1700		
Volume to Capacity	0.31	0.01	0.32	0.34		
Queue Length 95th (ft)	31	1	0	0		
Control Delay (s)	23.7	8.7	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	23.7	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			38.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
Route 62 Corridor Smart Transportation Study

4: E. Front Street & Wilson Avenue
2030 PM 3-lane Wilson to East 2nd Ave

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	463	285	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	0	0	0	571	377	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume			0		571	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		571	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		22	100
cM capacity (veh/h)			1623		484	1088
Direction, Lane #	WB 1	NB 1				
Volume Total	571	377				
Volume Left	0	377				
Volume Right	0	0				
cSH	1700	484				
Volume to Capacity	0.34	0.78				
Queue Length 95th (ft)	0	173				
Control Delay (s)	0.0	33.9				
Lane LOS		D				
Approach Delay (s)	0.0	33.9				
Approach LOS		D				
Intersection Summary						
Average Delay		13.5				
Intersection Capacity Utilization		84.1%	ICU Level of Service		E	
Analysis Period (min)		15				



Appendix E: Synchro HCM Reports

INTERSECTION SUMMARY

Site: Route 62_2009_AM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Existing Year (2009)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1196 veh/h	1435 pers/h
Percent Heavy Vehicles	2.0 %	
Degree of Saturation	0.466	
Practical Spare Capacity	82.4 %	
Effective Intersection Capacity	2566 veh/h	
Control Delay (Total)	1.71 veh-h/h	2.05 pers-h/h
Control Delay (Average)	5.2 sec	5.2 sec
Control Delay (Worst Lane)	11.7 sec	
Control Delay (Worst Movement)	11.7 sec	11.7 sec
Level of Service (Aver. Int. Delay)	LOS A	
Level of Service (Worst Movement)	LOS B	
Level of Service (Worst Lane)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	4.5 veh	
95% Back of Queue - Distance (Worst Lane)	113.4 ft	
Total Effective Stops	538 veh/h	646 pers/h
Effective Stop Rate	0.45 per veh	0.45 per pers
Proportion Queued	0.30	0.30
Performance Index	21.5	21.5
Travel Distance (Total)	428.3 veh-mi/h	513.9 pers-mi/h
Travel Distance (Average)	1891 ft	1891 ft
Travel Time (Total)	16.3 veh-h/h	19.5 pers-h/h
Travel Time (Average)	49.0 sec	49.0 sec
Travel Speed	26.3 mph	26.3 mph
Cost (Total)	244.75 \$/h	244.75 \$/h
Fuel Consumption (Total)	19.0 gal/h	
Carbon Dioxide (Total)	180.3 kg/h	
Hydrocarbons (Total)	0.290 kg/h	
Carbon Monoxide (Total)	12.34 kg/h	
NOx (Total)	0.378 kg/h	

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (HCM).

LOS Method for individual vehicle movements and lanes: Delay (HCM).

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	573,913 veh/y	688,696 pers/y
Delay	821 veh-h/y	986 pers-h/y
Effective Stops	258,260 veh/y	309,912 pers/y
Travel Distance	205,573 veh-mi/y	246,687 pers-mi/y
Travel Time	7,809 veh-h/y	9,371 pers-h/y
Cost	117,480 \$/y	117,480 \$/y
Fuel Consumption	9,140 gal/y	
Carbon Dioxide	86,566 kg/y	
Hydrocarbons	139 kg/y	
Carbon Monoxide	5,924 kg/y	
NOx	181 kg/y	

MOVEMENT SUMMARY

Site: Route 62_2009_AM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Existing Year (2009)
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Wilson Avenue											
3L	L	160	2.0	0.222	11.7	LOS B	1.5	38.2	0.61	0.76	22.0
8R	R	2	2.0	0.217	7.4	LOS A	1.5	38.2	0.61	0.65	22.9
Approach		162	2.0	0.222	11.7	LOS B	1.5	38.2	0.61	0.76	22.0
East: E Front Street											
6R	R	451	2.0	0.466	6.5	LOS A	4.5	113.4	0.57	0.57	31.3
Approach		451	2.0	0.466	6.5	LOS A	4.5	113.4	0.57	0.57	31.3
West: E 1st Street											
5L	L	13	2.0	0.251	10.1	LOS B	0.0	0.0	0.00	1.05	22.9
2T	T	407	2.0	0.248	2.4	LOS A	0.0	0.0	0.00	0.27	25.4
2R	R	163	2.0	0.097	1.6	LOS A	0.0	0.0	0.00	0.21	24.2
Approach		583	2.0	0.248	2.3	LOS B	0.0	0.0	0.00	0.27	25.0
All Vehicles		1196	2.0	0.466	5.2	LOS A	4.5	113.4	0.30	0.45	26.3

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).

Approach LOS values are based on the worst delay for any vehicle movement.

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

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INTERSECTION SUMMARY

Site: Route 62_2009_PM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Existing Year (2009)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1634 veh/h	1960 pers/h
Percent Heavy Vehicles	2.0 %	
Degree of Saturation	0.639	
Practical Spare Capacity	33.1 %	
Effective Intersection Capacity	2558 veh/h	
Control Delay (Total)	3.19 veh-h/h	3.82 pers-h/h
Control Delay (Average)	7.0 sec	7.0 sec
Control Delay (Worst Lane)	14.8 sec	
Control Delay (Worst Movement)	14.8 sec	14.8 sec
Level of Service (Aver. Int. Delay)	LOS A	
Level of Service (Worst Movement)	LOS B	
Level of Service (Worst Lane)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	7.9 veh	
95% Back of Queue - Distance (Worst Lane)	201.5 ft	
Total Effective Stops	922 veh/h	1107 pers/h
Effective Stop Rate	0.56 per veh	0.56 per pers
Proportion Queued	0.39	0.39
Performance Index	33.2	33.2
Travel Distance (Total)	588.6 veh-mi/h	706.3 pers-mi/h
Travel Distance (Average)	1902 ft	1902 ft
Travel Time (Total)	23.4 veh-h/h	28.1 pers-h/h
Travel Time (Average)	51.6 sec	51.6 sec
Travel Speed	25.1 mph	25.1 mph
Cost (Total)	351.69 \$/h	351.69 \$/h
Fuel Consumption (Total)	27.3 gal/h	
Carbon Dioxide (Total)	258.1 kg/h	
Hydrocarbons (Total)	0.421 kg/h	
Carbon Monoxide (Total)	18.37 kg/h	
NOx (Total)	0.545 kg/h	

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (HCM).

LOS Method for individual vehicle movements and lanes: Delay (HCM).

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	784,174 veh/y	941,009 pers/y
Delay	1,529 veh-h/y	1,835 pers-h/y
Effective Stops	442,630 veh/y	531,155 pers/y
Travel Distance	282,509 veh-mi/y	339,011 pers-mi/y
Travel Time	11,242 veh-h/y	13,491 pers-h/y
Cost	168,809 \$/y	168,809 \$/y
Fuel Consumption	13,080 gal/y	
Carbon Dioxide	123,886 kg/y	
Hydrocarbons	202 kg/y	
Carbon Monoxide	8,819 kg/y	
NOx	262 kg/y	

MOVEMENT SUMMARY

Site: Route 62_2009_PM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Existing Year (2009)
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Wilson Avenue											
3L	L	279	2.0	0.439	14.8	LOS B	3.6	91.0	0.76	0.93	20.9
8R	R	2	2.0	0.435	10.5	LOS B	3.6	91.0	0.76	0.86	21.7
Approach		282	2.0	0.438	14.8	LOS B	3.6	91.0	0.76	0.93	21.0
East: E Front Street											
6R	R	503	2.0	0.639	10.5	LOS B	7.9	201.5	0.83	0.84	29.5
Approach		503	2.0	0.639	10.5	LOS B	7.9	201.5	0.83	0.84	29.5
West: E 1st Street											
5L	L	30	2.0	0.331	10.1	LOS B	0.0	0.0	0.00	1.04	22.9
2T	T	530	2.0	0.332	2.4	LOS A	0.0	0.0	0.00	0.27	25.4
2R	R	288	2.0	0.171	1.6	LOS A	0.0	0.0	0.00	0.21	24.2
Approach		849	2.0	0.332	2.4	LOS B	0.0	0.0	0.00	0.28	24.9
All Vehicles		1634	2.0	0.639	7.0	LOS A	7.9	201.5	0.39	0.56	25.1

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).

Approach LOS values are based on the worst delay for any vehicle movement.

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

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Site: Route 62_2035_AM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Future Year (2035)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1327 veh/h	1593 pers/h
Percent Heavy Vehicles	2.0 %	
Degree of Saturation	0.530	
Practical Spare Capacity	60.5 %	
Effective Intersection Capacity	2506 veh/h	
Control Delay (Total)	1.98 veh-h/h	2.37 pers-h/h
Control Delay (Average)	5.4 sec	5.4 sec
Control Delay (Worst Lane)	12.3 sec	
Control Delay (Worst Movement)	12.3 sec	12.3 sec
Level of Service (Aver. Int. Delay)	LOS A	
Level of Service (Worst Movement)	LOS B	
Level of Service (Worst Lane)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	5.4 veh	
95% Back of Queue - Distance (Worst Lane)	136.5 ft	
Total Effective Stops	622 veh/h	746 pers/h
Effective Stop Rate	0.47 per veh	0.47 per pers
Proportion Queued	0.33	0.33
Performance Index	24.3	24.3
Travel Distance (Total)	475.3 veh-mi/h	570.4 pers-mi/h
Travel Distance (Average)	1891 ft	1891 ft
Travel Time (Total)	18.1 veh-h/h	21.8 pers-h/h
Travel Time (Average)	49.2 sec	49.2 sec
Travel Speed	26.2 mph	26.2 mph
Cost (Total)	273.02 \$/h	273.02 \$/h
Fuel Consumption (Total)	21.3 gal/h	
Carbon Dioxide (Total)	201.3 kg/h	
Hydrocarbons (Total)	0.324 kg/h	
Carbon Monoxide (Total)	13.85 kg/h	
NOx (Total)	0.423 kg/h	

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (HCM).

LOS Method for individual vehicle movements and lanes: Delay (HCM).

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	637,043 veh/y	764,452 pers/y
Delay	949 veh-h/y	1,139 pers-h/y
Effective Stops	298,340 veh/y	358,008 pers/y
Travel Distance	228,160 veh-mi/y	273,792 pers-mi/y
Travel Time	8,708 veh-h/y	10,450 pers-h/y
Cost	131,049 \$/y	131,049 \$/y
Fuel Consumption	10,201 gal/y	
Carbon Dioxide	96,610 kg/y	
Hydrocarbons	156 kg/y	
Carbon Monoxide	6,650 kg/y	
NOx	203 kg/y	

MOVEMENT SUMMARY

Site: Route 62_2035_AM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Future Year (2035)
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Wilson Avenue											
3L	L	177	2.0	0.256	12.3	LOS B	1.8	44.8	0.64	0.79	21.8
8R	R	2	2.0	0.272	8.0	LOS A	1.8	44.8	0.64	0.68	22.6
Approach		179	2.0	0.256	12.3	LOS B	1.8	44.8	0.64	0.79	21.8
East: E Front Street											
6R	R	501	2.0	0.530	6.8	LOS A	5.4	136.5	0.64	0.61	31.0
Approach		501	2.0	0.530	6.8	LOS A	5.4	136.5	0.64	0.61	31.0
West: E 1st Street											
5L	L	14	2.0	0.277	10.1	LOS B	0.0	0.0	0.00	1.05	22.9
2T	T	451	2.0	0.276	2.4	LOS A	0.0	0.0	0.00	0.27	25.4
2R	R	182	2.0	0.107	1.6	LOS A	0.0	0.0	0.00	0.21	24.2
Approach		647	2.0	0.275	2.3	LOS B	0.0	0.0	0.00	0.27	25.0
All Vehicles		1327	2.0	0.530	5.4	LOS A	5.4	136.5	0.33	0.47	26.2

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).

Approach LOS values are based on the worst delay for any vehicle movement.

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

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INTERSECTION SUMMARY

Site: Route 62_2035_PM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Future Year (2035)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1813 veh/h	2176 pers/h
Percent Heavy Vehicles	2.0 %	
Degree of Saturation	0.740	
Practical Spare Capacity	14.9 %	
Effective Intersection Capacity	2450 veh/h	
Control Delay (Total)	4.26 veh-h/h	5.11 pers-h/h
Control Delay (Average)	8.5 sec	8.5 sec
Control Delay (Worst Lane)	17.3 sec	
Control Delay (Worst Movement)	17.4 sec	17.4 sec
Level of Service (Aver. Int. Delay)	LOS A	
Level of Service (Worst Movement)	LOS B	
Level of Service (Worst Lane)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	11.3 veh	
95% Back of Queue - Distance (Worst Lane)	286.8 ft	
Total Effective Stops	1143 veh/h	1371 pers/h
Effective Stop Rate	0.63 per veh	0.63 per pers
Proportion Queued	0.43	0.43
Performance Index	39.4	39.4
Travel Distance (Total)	653.2 veh-mi/h	783.8 pers-mi/h
Travel Distance (Average)	1902 ft	1902 ft
Travel Time (Total)	26.7 veh-h/h	32.1 pers-h/h
Travel Time (Average)	53.1 sec	53.1 sec
Travel Speed	24.4 mph	24.4 mph
Cost (Total)	400.14 \$/h	400.14 \$/h
Fuel Consumption (Total)	30.8 gal/h	
Carbon Dioxide (Total)	291.9 kg/h	
Hydrocarbons (Total)	0.479 kg/h	
Carbon Monoxide (Total)	20.98 kg/h	
NOx (Total)	0.618 kg/h	

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (HCM).

LOS Method for individual vehicle movements and lanes: Delay (HCM).

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	870,261 veh/y	1,044,313 pers/y
Delay	2,046 veh-h/y	2,455 pers-h/y
Effective Stops	548,545 veh/y	658,253 pers/y
Travel Distance	313,519 veh-mi/y	376,222 pers-mi/y
Travel Time	12,825 veh-h/y	15,390 pers-h/y
Cost	192,067 \$/y	192,067 \$/y
Fuel Consumption	14,792 gal/y	
Carbon Dioxide	140,095 kg/y	
Hydrocarbons	230 kg/y	
Carbon Monoxide	10,071 kg/y	
NOx	297 kg/y	

MOVEMENT SUMMARY

Site: Route 62_2035_PM PEAK

Route 62 Smart Transportation Study
E Front St/Wilson Ave/E 1st St
Future Year (2035)
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Wilson Avenue											
3L	L	310	2.0	0.513	17.4	LOS B	4.8	121.5	0.82	1.04	20.2
8R	R	2	2.0	0.543	13.0	LOS B	4.8	121.5	0.82	0.99	20.8
Approach		312	2.0	0.513	17.3	LOS B	4.8	121.5	0.82	1.04	20.2
East: E Front Street											
6R	R	559	2.0	0.740	13.8	LOS B	11.3	286.8	0.94	1.00	27.3
Approach		559	2.0	0.740	13.8	LOS B	11.3	286.8	0.94	1.00	27.3
West: E 1st Street											
5L	L	34	2.0	0.370	10.1	LOS B	0.0	0.0	0.00	1.04	22.9
2T	T	589	2.0	0.369	2.4	LOS A	0.0	0.0	0.00	0.27	25.4
2R	R	320	2.0	0.189	1.6	LOS A	0.0	0.0	0.00	0.21	24.2
Approach		942	2.0	0.369	2.4	LOS B	0.0	0.0	0.00	0.28	24.9
All Vehicles		1813	2.0	0.740	8.5	LOS A	11.3	286.8	0.43	0.63	24.4

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).

Approach LOS values are based on the worst delay for any vehicle movement.

Roundabout LOS Method: Same as Signalised Intersections.

Roundabout Capacity Model: SIDRA Standard.

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Appendix F: Funding Analysis

Transit and Bicycle			
Agency	Grant/Funding Resource	Description/Eligibility	Window of Opportunity
Economic Development Administration (EDA)	Planning Program Public Works and Economic Development Facilities Program Community Infrastructure ARRA Grant	Planning initiatives designed to create and retain higher-skill, higher-wage jobs, in economically distressed regions. Assist local and regional organizations with their short and long term planning efforts. www.eda.gov/PDF/FY09-EDAP-FFO-FINAL.pdf Construction or rehabilitation of essential public infrastructure and facilities www.arc.gov/index.do?nodeId=3320	\$246,000,000 appropriated Application deadline - June 30, 2011
	Capital Investments in Surface Transportation Infrastructure (ARRA) (TIGER grants) <i>Federal Transportation Funding Replenished the Highway Trust Fund</i>	Transportation projects to be provided to a State, local government, transit agency or collaboration among such entities with long-term outcomes or job creation, innovation and stem partnerships. Safe Routes to Schools; Transportation Enhancements; Recreational Trails; Scenic Byways; and the U.S. Bicycle Route System www.fhwa.dot.gov/economicrecovery/index.htm www.americantrails.org/rtp/Oberstar-transportation-plan-June-2009.html	\$600,000,000 is available through September 30, 2012
	Congestion Management and Air Quality Improvement Program (CMAQ)	Projects that reduce criteria air pollutants regulated from transportation-related sources over a period of five years.	\$8.6 billion dollars in funds to State DOTs, MPOs, and transit agencies
FHWA	Urban Transit Operating Assistance Program	Fund provided to cover costs incurred in the daily operation of local public transportation.	The annual amount of funding is determined by legislative formula.
	Urban Capital Assistance Program	Provide grants to local operators of public transportation system.	Local matching funds are required.
	Hometown Streets; Safe Routes to School	Improve the quality of life in our communities. Streetscape improvements for downtowns and commercial centers; and safe walking and biking passages to our schools. www.dot.state.pa.us/PennDOT/Bureaus/CPDM/Prod/Saferoute.nsf/guidance?OpenPage www.smart-transportation.com	Matching funds – utilizes federal fund; match is 20% of the total project costs.
PENNDOT	Pennsylvania Community Transportation Initiative (PCTI) (Smart Transportation)	Transportation Improvement Program (TIP) supports potential projects that exhibit Smart Transportation principles.	\$60 million dollars of federal and state transportation funds will be made available. Projects may receive up to \$5 million dollars (no more than \$300,00 dollars for planning activities) for projects. Applicants must request funds through PennDOT's Center for Program Development and Management.
Federal Transit Administration	Bus and Bus Facilities; Rail and Fixed Guideway Modernization (5309)	New and replacement buses, related equipment, and facilities. Modernization of existing rail systems, new and replacement buses and facilities, new fixed guideway systems www.fta.dot.gov/funding/grants/grants_financing_3557.html www.fta.dot.gov/funding/grants/grants_financing_3558.html	Discretion funds must be spent in three fiscal years. Match: 80 % Federal, 20 % local allocation must be spent in three years Elm Street -Admin- \$225,000 Reinvestment- \$225,000/year
	Growing Greener II	Capital improvement costs and those costs directly related to such physical building improvements such as the acquisition and pre-development costs	Annual funding range between \$250,000 to \$500,000
	Community Action Team Pre-development Grant to Loan Program	Early stage capital, to facilitate sketch planning, cost estimating, market evaluation, minimal site control activities and general development coordination.	\$75,000 per project; online application process / accepted throughout the fiscal year
Department of Community and Economic Development (DCED)	Community Revitalization Program (CRP)	Provides grant funds to support local initiatives that promote community stability and quality of life.	Funding varies – electronic single application for assistance www.newPA.com ; March 21, 2011 submission deadline
	Community & Municipal Facilities Assistance Program	Improve the stability of the community; promote economic and/or community development, improve existing and/or develop new civic, cultural, recreational, industrial, and other facilities or activities.	Funding varies – electronic single application for assistance www.newPA.com ; March 21, 2011 submission deadline
	Elm Street Program	Revitalization of residential and mixed use neighborhoods; administration cats to support an Elm Street Program.	Funding – Up to \$250,000. Online application process or printed copy. Applications may be submitted at any time.
Bikes Belong Coalition	Main Street Program	Physical improvements supported by downtown plan for Downtown Reinvestment Component, acquisition costs and physical building improvements for anchor building components.	Funding for \$115,000 over a 5 year period. Downtown reinvestment and anchor building components: up to \$250,000 or not to exceed 30% of project costs.
	Bikes Belong Program	Eligible to agencies committed to putting more people on bicycles more often. Includes bike path paving, building rail-trails, mountain bike trails, bike parks, and large-scale bicycle advocacy initiatives. http://www.bikesbelong.org/node/40	3 funding rounds in 2010: Applications due May 28, Aug 27 and Nov 26, 2010 up to \$10,000
	REI/Bicycle Friendly Communities Grants	Construction and promotion projects bicycle facilities, marketing, education and awareness programming. Supports bicycle friendly communities that are demonstrating success, employing creative strategies, and showing marked advancements in becoming more bicycle friendly. http://www.bikesbelong.org/node/221103	Annual Grants range between \$5,000 to \$15,000

Streetscape Enhancements			
Agency	Grant/Funding Resource	Description/Eligibility	Window of Opportunity
Economic Development Administration (EDA)	Planning Program Public Works and Economic Development Facilities Program Community Infrastructure ARRA Grant	Planning initiatives designed to create and retain higher-skill, higher-wage jobs, in economically distressed regions. Assist local and regional organizations with their short and long term planning efforts. www.eda.gov/PDF/FY09-EDAP-FFO-FINAL.pdf Construction or rehabilitation of essential public infrastructure and facilities www.arc.gov/index.do?nodeId=3320	\$246,000,000 appropriated Application deadline - June 30, 2011
	Community Development Block Grant (CDBG) – ARRA grant funds	Housing and infrastructure improvements. Lebanon County administers the CDBG program annually. www.arc.gov/index.do?nodeId=3320	\$13.61 billion in ARRA funding.
U.S. Department of Housing and Urban Development (HUD)	Urban Transit Operating Assistance Program	Fund provided to cover costs incurred in the daily operation of local public transportation.	The annual amount of funding is determined by legislative formula.
	Urban Capital Assistance Program	Provide grants to local operators of public transportation system.	Local matching funds are required.
	Hometown Streets; Safe Routes to School	Improve the quality of life in our communities. Streetscape improvements for downtowns and commercial centers; and safe walking and biking passages to our schools. www.dot.state.pa.us/PennDOT/Bureaus/CPDM/Prod/Saferoute.nsf/guidance?OpenPage www.smart-transportation.com	Matching funds – utilizes federal fund; match is 20% of the total project costs.
	Pennsylvania Community Transportation Initiative (PCTI) (Smart Transportation)	Transportation Improvement Program (TIP) supports potential projects that exhibit Smart Transportation principles.	\$60 million dollars of federal and state transportation funds will be made available. Projects may receive up to \$5 million dollars (no more than \$300,00 dollars for planning activities) for projects. Applicants must request funds through PennDOT's Center for Program Development and Management.
	Growing Greener II	Capital improvement costs and those costs directly related to such physical building improvements such as the acquisition and pre-development costs	Annual funding range between \$250,000 to \$500,000
Department of Community and Economic Development (DCED)	Community Action Team Pre-development Grant to Loan Program	Early stage capital, to facilitate sketch planning, cost estimating, market evaluation, minimal site control activities and general development coordination.	\$75,000 per project; online application process / accepted throughout the fiscal year
	Main Street Program	Physical improvements supported by downtown plan for Downtown Reinvestment Component, acquisition costs and physical building improvements for anchor building components.	Funding for \$115,000 over a 5 year period. Downtown reinvestment and anchor building components: up to \$250,000 or not to exceed 30% of project costs.

Drainage Improvements			
PA Infrastructure Investment Authority (PENNVEST)	Drinking Water, Wastewater and Storm water Loans and Non-Point Source Financing America Recovery & Reinvestment Act 2009 (ARRA) Green Reserve Grants Growing Greener Grants	Program provides to projects throughout PA for the construction and maintenance of wastewater treatment facilities, storm water management projects, non-point source pollution controls, and watershed and estuary management. www.portal.state.pa.us/portal/server.pt/community/available_funding	The PENNVEST Board meets three times per year-March, July and November. Applications are due 9 weeks prior to Board meetings.
Commonwealth Financing Authority (CFA) in conjunction with PADEP & DCED	H2O PA Grants	Water, wastewater, stormwater, flood protection and dam safety projects. http://www.newpa.com/find-and-apply-for-funding/commonwealth-financing-authority/index.aspx	- \$489,324,680 was awarded in July of 2009. - New round set for August 2010.
Economic Development Administration (EDA)	Public Works and Economic Development Facilities Program Community Infrastructure ARRA Grant Planning Program	Planning initiatives designed to create and retain higher-skill, higher-wage jobs, in economically distressed regions. Assist local and regional organizations with their short and long term planning efforts. www.eda.gov/PDF/FY09-EDAP-FFO-FINAL.pdf Construction or rehabilitation of essential public infrastructure and facilities www.arc.gov/index.do?nodeId=3320	\$246,000,000 appropriated Application deadline - June 30, 2011
U.S. Department of Housing and Urban Development (HUD)	Community Development Block Grant (CDBG) – ARRA grant funds	Housing and revitalization projects. www.arc.gov/index.do?nodeId=3320	\$13.61 billion in ARRA funding.
Environmental Protection Agency (EPA)	Clean Water State Revolving Fund and Drinking Water State Revolving Fund - Green Project Reserve Grant	Projects that protect and promote “green”; job creation; and healthier environment, water quality and wastewater infrastructure, green infrastructure, water and energy efficiency, and environmentally innovative projects. Promote and encourage environmental responsibilities in our communities that are creative and innovative with green solutions for water quality management. Program provides a resource for funding various public drinking water systems for expenditures for projects which will facilitate compliance with national and state drinking water regulations or otherwise advance the health protection objectives of the State Drinking Water Act. www.epa.gov/recovery/basic.html	\$40 million for state ARRA funding
U.S. Department of Agriculture (USDA)	Community Facilities Loans and Grants Infrastructure and Rural Development	Essential community facilities to construct, enlarge, or improve community facilities for health care, public safety, and community and public services. www.rurdev.usda.gov/rhs/cf/brief_cp_grant.htm	Assistance may be available for up to 75% of the project cost. Funding limitations are based on population, income, economic feasibility, and availability of funds.
	Rural Community Development Initiative Grants	To develop the capacity and ability of private, non-profit community based housing and community development organizations, and how income rural communities to improve housing, community facilities, community and economic development projects in rural areas.	The \$6,286,500 in RCDI grant funds are available to intermediaries and have a dollar for dollar matching fund requirement, intended to double the impact of the grants. Qualified organizations can be public or private (including tribal organizations) that have been legally organized for at least three years and have experience working with eligible recipients. Recipients of assistance from the intermediary can be non-profit organizations, low-income communities, or federally recognized tribes.

Downtown Revitalization			
Agency	Grant/Funding Resource	Description/Eligibility	Window of Opportunity
US Department of Agriculture (USDA)	Community Facilities Loans and Grants Infrastructure and Rural Development	Improve essential community facilities in communities. www.rurdev.usda.gov/rhs/cf/brief_cp_grant.htm	The amount of grant assistance for a project costs depends upon the median household income and the population in the community where the project is located and the availability of grant funds.
	Rural Community Development Initiative Grants	To develop the capacity and ability of private, non-profit community based housing and community development organizations, and how income rural communities to improve housing, community facilities, community and economic development projects in rural areas.	The \$6,286,500 in RCDI grant funds are available to intermediaries and have a dollar for dollar matching fund requirement, intended to double the impact of the grants. Qualified organizations can be public or private (including tribal organizations) that have been legally organized for at least three years and have experience working with eligible recipients. Recipients of assistance from the intermediary can be non-profit organizations, low-income communities, or federally recognized tribes.
	Planning Program	Planning initiatives designed to create and retain higher-skill, higher-wage jobs, in economically distressed regions. Assist local and regional organizations with their short and long term planning efforts. www.eda.gov/PDF/FY09-EDAP-FFO-FINAL.pdf	Potential applicants are responsible for demonstrating to EDA, by providing statistics and other information, as appropriate, the nature and level of economic distress in the region. Grant may not exceed 50% of the total cost of the project. Projects may receive an additional amount that shall not exceed 30%, based on the relative needs of the region in which the project will be located, as determined by EDA.
U.S. Department of Housing and Urban Development (HUD)	Community Development Block Grant (CDBG) – ARRA grant funds	community development activities: Acquisition, demolition, rehabilitation, streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works; economic development activities www.arc.gov/index.do?nodeId=3320	Annual grant cycle
	Growing Greener II	Capital improvement costs and those costs directly related to such physical building improvements such as the acquisition and pre-development costs	Annual funding range between \$250,000 to \$500,000
	Main Street Program	Physical improvements supported by downtown plan for Downtown Reinvestment Component, acquisition costs and physical building improvements for anchor building components.	Funding for \$115,000 over a 5 year period. Downtown reinvestment and anchor building components: up to \$250,000 or not to exceed 30% of project costs.
Department of Community and Economic Development (DCED)	Community Revitalization Program (CRP)	Provides grant funds to support local initiatives that promote community stability and quality of life.	Funding varies – electronic single application for assistance www.newpa.com ; March 21, 2011 submission deadline
	Housing & Redevelopment Assistance Community Services Block Grant		Funding levels vary every year. Grant awards are made in three funding rounds during the fiscal year. DCED will grant approximately 1/3 of the program appropriation in each round. (Applications due: March, September and December).
	Urban Development Program Regional Economic Development District Initiative Program (REDDI)	Community development, redevelopment and revitalization projects. www.newpa.com	

Gateway			
Agency	Grant/Funding Resource	Description/Eligibility	Window of Opportunity
Department of Community and Economic Development (DCED)	Growing Greener II	Capital improvement costs and those costs directly related to such physical building improvements such as the acquisition and pre-development costs	Annual funding range between \$250,000 to \$500,000
	Urban Development Program Regional Economic Development District Initiative Program (REDDI)	Community development, redevelopment and revitalization projects. www.newpa.com	Funding levels vary every year. Grant awards are made in three funding rounds during the fiscal year. DCED will grant approximately 1/3 of the program appropriation in each round. (Applications due: March, September and December).
	Community Revitalization Program (CRP)	Provides grant funds to support local initiatives that promote community stability and quality of life.	Funding varies – electronic single application for assistance www.newPA.com ; March 21, 2011 submission deadline
	Main Street Program	Physical improvements supported by downtown plan for Downtown Reinvestment Component, acquisition costs and physical building improvements for anchor building components.	Funding for \$115,000 over a 5 year period. Downtown reinvestment and anchor building components: up to \$250,000 or not to exceed 30% of project costs.
Downtown Improvement District (DID)	Downtown property owners	A DID program is a special tax assessment district created by a municipality for a specific function or purpose. A District Authority can operate and manage streetscape enhancement projects, safety and cleaning projects, and other downtown improvement initiatives.	Tax assessment levels differ depending on the size of the district and level of assessment.

Parking Lot Development Project*			
Agency	Grant/Funding Resource	Description/Eligibility	Window of Opportunity
U.S. Department of Agriculture (USDA)	Community Facilities Loans and Grants Infrastructure and Rural Development	Essential community facilities to construct, enlarge, or improve community facilities for health care, public safety, and community and public services www.rurdev.usda.gov/rhs/cf/brief_cp_grant.htm	Assistance may be available for up to 75% of the project cost. Funding limitations are based on population, income, economic feasibility, and availability of funds. The \$6,286,500 in RCDI grant funds are available to intermediaries and have a dollar for dollar matching fund requirement, intended to double the impact of the grants. Qualified organizations can be public or private (including tribal organizations) that have been legally organized for at least three years and have experience working with eligible recipients. Recipients of assistance from the intermediary can be non-profit organizations, low-income communities, or federally recognized tribes.
	Rural Community Development Initiative Grants	To develop the capacity and ability of private, non-profit community based housing and community development organizations, and how income rural communities to improve housing, community facilities, community and economic development projects in rural areas.	
	Planning Program Public Works and Economic Development Facilities Program Community Infrastructure ARRA Grant	Planning initiatives designed to create and retain higher-skill, higher-wage jobs, in economically distressed regions. Assist local and regional organizations with their short and long term planning efforts. www.eda.gov/PDF/FY09-EDAP-FFO-FINAL.pdf Construction or rehabilitation of essential public infrastructure and facilities www.arc.gov/index.do?nodeId=3320	\$246,000,000 appropriated Application deadline - June 30, 2011
FHWA	Capital Investments in Surface Transportation Infrastructure (ARRA) (TIGER grants) Federal Transportation Funding Replenished the Highway Trust Fund	Transportation projects to be provided to a State, local government, transit agency or collaboration among such entities with long-term outcomes or job creation, innovation and stem partnerships. Safe Routes to Schools; Transportation Enhancements; Recreational Trails; Scenic Byways; and the U.S. Bicycle Route System www.fhwa.dot.gov/economicrecovery/index.htm www.americantrails.org/rtp/Oberstar-transportation-plan-June-2009.html	\$600,000,000 is available through September 30, 2012
	Congestion Management and Air Quality Improvement Program (CMAQ)	Projects that reduce criteria air pollutants regulated from transportation-related sources over a period of five years.	\$8.6 billion dollars in funds to State DOTs, MPOs, and transit agencies
	Urban Transit Operating Assistance Program	Fund provided to cover costs incurred in the daily operation of local public transportation.	The annual amount of funding is determined by legislative formula.
PENNDOT	Urban Capital Assistance Program	Provide grants to local operators of public transportation system.	Local matching funds are required.
	Hometown Streets; Safe Routes to School	Improve the quality of life in our communities. Streetscape improvements for downtowns and commercial centers; and safe walking and biking passages to our schools. www.dot.state.pa.us/PennDOT/Bureaus/CPDM/Prod/Saferoute.nsf/guidance?OpenPage www.smart-transportation.com	Matching funds – utilizes federal fund; match is 20% of the total project costs.
	Pennsylvania Community Transportation Initiative (PCTI) (Smart Transportation)	Transportation Improvement Program (TIP) supports potential projects that exhibit Smart Transportation principles.	\$60 million dollars of federal and state transportation funds will be made available. Projects may receive up to \$5 million dollars (no more than \$300,00 dollars for planning activities) for projects. Applicants must request funds through PennDOT's Center for Program Development and Management.
Federal Transit Administration	Bus and Bus Facilities; Rail and Fixed Guideway Modernization (5309)	New and replacement buses, related equipment, and facilities. Modernization of existing rail systems, new and replacement buses and facilities, new fixed guideway systems www.fta.dot.gov/funding/grants/grants_financing_3557.html www.fta.dot.gov/funding/grants/grants_financing_3558.html	Discretion funds must be spent in three fiscal years. Match: 80% Federal, 20% local allocation must be spent in three years Elm Street -Admin- \$225,000 Reinvestment- \$225,000/year
	Community Revitalization Program (CRP)	Provides grant funds to support local initiatives that promote community stability and quality of life.	Funding varies – electronic single application for assistance www.newPA.com ; March 21,2011 submission deadline
Department of Community and Economic Development (DCEd)	Community & Municipal Facilities Assistance Program	Improve the stability of the community; promote economic and/or community development, improve existing and/or develop new civic, cultural, recreational, industrial, and other facilities or activities.	Funding varies – electronic single application for assistance www.newPA.com ; March 21,2011 submission deadline
	Elm Street Program	Revitalization of residential and mixed use neighborhoods; administration cats to support an Elm Street Program.	Funding – Up to \$250,000. Online application process or printed copy. Applications may be submitted at any time.
	Main Street Program	Physical improvements supported by downtown plan for Downtown Reinvestment Component, acquisition costs and physical building improvements for anchor building components.	Funding for \$115,000 over a 5 year period. Downtown reinvestment and anchor building components: up to

				\$250,000 or not to exceed 30% of project costs.
	Growing Greener II	Capital improvement costs and those costs directly related to such physical building improvements such as the acquisition and pre-development costs		Annual funding range between \$250,000 to \$500,000
	Community Action Team Pre-development Grant to Loan Program	Early stage capital, to facilitate sketch planning, cost estimating, market evaluation, minimal site control activities and general development coordination.		\$75,000 per project; online application process / accepted throughout the fiscal year

* Funding may be dependent upon the level of economic development, increase in jobs, affiliation to transit facilities and operations, and or private investment.



Appendix G: GAP Analysis



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Appendix G.1 GAP Analysis

For reference, **opportunity gaps** indicate the expenditure of local dollars outside of the community (goods and services not adequately provided for in the local community) and the **surplus gaps** of goods and services provided in the City or Surrounding Area that meet regional demand.

Appendix G.1.1: Oil City Study Area / Gap Analysis Results

The data indicates that the Oil City Study Area may be able to support a motor vehicle and parts dealer, gasoline station, a general merchandise store, or clothing and clothing accessory store. The data also indicates that the Oil City Study Area is meeting a regional demand for electronics and appliances, building materials and garden equipment, food and beverage products, health and personal care facilities and products, and food services and drinking places. **Utilizing a gap analysis provides an initial indicator for retail and services opportunities for a selected region, therefore further market study and analysis is considered prudent.**



Table G.1-1: Oil City Study Area Opportunity Gap & Opportunity Surplus

<i>Oil City Study Area Opportunity Gap & Opportunity Surplus</i>
<u>Opportunity Gaps:</u> Opportunities for new or expanded stores. Local resident demand exceeds local store supply of goods or services for the following: <ul style="list-style-type: none">• \$463,797 for Motor Vehicle and Parts Dealers (automotive dealers)• \$64,519 for Furniture and Home Furnishings• \$696,896 for Gasoline Stations (stations with or without convenience stores)• \$209,647 for Clothing and Clothing Accessory products (clothing, shoe, jewelry, luggage, and leather stores)• \$65,405 for Sporting Goods, Hobby, Book, Music products (sporting goods, books, periodical, and musical instrument stores)• \$599,933 for General Merchandise Store products (department stores)• \$37,640 for Miscellaneous Store products (florists, office supplies, gifts, and used merchandise stores)• \$390,795 for Non-Store Retailers
<u>Opportunity Surplus:</u> Opportunities to meet regional demand. Local store supply of goods and services in this area exceeds local resident demand. This indicates that people from outside the area come here to purchase the following products. <ul style="list-style-type: none">• \$107,918 for Electronics and Appliances (appliance, electronic, computer and software, camera equipment stores)• \$291,472 for Building Materials, Garden Equipment Store products• \$1,439,426 for Food and Beverage Store products (grocery, specialty foods, beer, wine, & liquor stores)• \$966,146 for Health and Personal Care Store products (health and personal care merchandise from fixed point-of-sale locations – which may include Doctors, Physicians, Counselors, as staff)• \$112,602 for Food Service and Drinking Places (full service restaurants, limited service restaurants, special food services, and drinking places)

Source: 2010 Claritas Inc., GAP Report



Factors such as location as well as local and regional demand must be further analyzed through a feasibility study by the private sector to validate the potential for the following additional business establishments and number of employees. Current land use regulations with respect to retail favor small to medium sized retail operations.

Table G.1-2: Oil City Study Area Business Overview – Existing Conditions

<i>Oil City Study Area Business Overview</i>		
Business Description	Total Establishments	Total Employees
Industries (All)	92	666
Industries (Private Sector)	73	431
<i>Industries (Government and Non-Profit)</i>	19	235
Retail (All Retail)	30	186
Building Materials and Garden Supply	1	6
General Merchandise Stores	1	6
Food Stores	6	33
Auto Dealers and Gas Stations	2	3
Apparel and Accessory Stores	0	0
Home Furniture, Furnishings and Equipment	3	15
Eating and Drinking Places	10	61
Miscellaneous Retail Stores	7	62
Service (All)	34	268
Hotel and Other Lodging	0	0
Personal Services	4	9
Business Services	2	3
Motion Picture and Amusement	1	6
Health Services	10	57
Legal Services	1	2
Educational Services	1	11
Social Services	5	150
Misc, Membership Orgs and Non-classified	10	30

Source: 2010 Claritas Inc.



Appendix G.1.2: Oil City (2 Mile Radius) / Gap Analysis Results

The data indicates that the two mile radius within Oil City may be able to support in addition to the current businesses, motor vehicle and parts dealer, furniture and home furnishing store, electronics and appliance store, food and beverage store, health and personal care store, gasoline station, clothing and clothing accessory store, sporting goods, hobby and music store, general merchandise store, and a food service and drinking place. The data also indicates that the geographic region is meeting a regional demand for building materials and garden equipment. ***Utilizing a gap analysis provides an initial indicator for retail and services opportunities for a selected region; therefore further market study and analysis is considered prudent.***



Table G.1-3: Oil City (2 Mile Radius) Opportunity Gap & Opportunity Surplus

<i>Oil City (2 Mile Radius) Opportunity Gap – Opportunity Surplus</i>
<p><u>Opportunity Gaps:</u></p> <p>Opportunities for new or expanded stores. Local resident demand exceeds local store supply of goods or services for the following:</p> <ul style="list-style-type: none">• \$10.8 million for Motor Vehicle and Parts Dealers (automotive dealers)• \$3.0 million for Furniture and Home Furnishings• \$1.1 million for Electronics and Appliances (appliance, electronic, computer and software, camera equipment stores)• \$10.1 million for Food and Beverage Store products (grocery, specialty foods, beer, wine, & liquor stores)• \$2.5 million for Health and Personal Care Store products (health and personal care merchandise from fixed point-of-sale locations – which may include Doctors, Physicians, Counselors, as staff)• \$4.4 million for Gasoline Stations (stations with or without convenience stores)• \$7.0 million for Clothing and Clothing Accessory products (clothing, shoe, jewelry, luggage, and leather stores)• \$2.3 million for Sporting Goods, Hobby, Book, Music products (sporting goods, books, periodical, and musical instrument stores)• \$22.8 million for General Merchandise Store products (department stores)• \$1.7 million for Miscellaneous Store products (florists, office supplies, gifts, and used merchandise stores)• \$14.1 million for Non-Store Retailers• \$12.5 for Food Service and Drinking Places (full service restaurants, limited service restaurants, special food services, and drinking places) <p><u>Opportunity Surplus:</u></p> <p>Opportunities to meet regional demand. Local store supply of goods and services in this area exceeds local resident demand. This indicates that people from outside the area come here to purchase the following products.</p> <ul style="list-style-type: none">• \$2.1 million for Building Materials, Garden Equipment Store products

Source: 2010 Claritas Inc., Gap Report



Factors such as location as well as local and regional demand must be further analyzed through a feasibility study by the private sector to validate the potential for the following additional business establishments and number of employees. Current land use regulations with respect to retail favor small to medium sized retail operations.

Table G.1-4: Oil City (2 Mile Radius) Business Overview – Existing Conditions

<i>Oil City (2 Mile Radius) Business Overview</i>		
Business Description	Total Establishments	Total Employees
Industries (All)	490	6,308
Industries (Private Sector)	376	4,909
<i>Industries (Government and Non-Profit)</i>	114	1,399
Retail (All Retail)	94	568
Building Materials and Garden Supply	5	31
General Merchandise Stores	3	17
Food Stores	12	103
Auto Dealers and Gas Stations	7	31
Apparel and Accessory Stores	3	3
Home Furniture, Furnishings and Equipment	11	35
Eating and Drinking Places	29	243
Miscellaneous Retail Stores	24	105
Service (All)	219	2,111
Hotel and Other Lodging	2	51
Personal Services	44	134
Business Services	31	495
Motion Picture and Amusement	7	19
Health Services	29	166
Legal Services	13	59
Educational Services	14	436
Social Services	28	537
Misc, Membership Orgs and Non-classified	51	214

Source: 2010 Claritas Inc.



Appendix G.1.3: Oil City Surrounding Area (8 Mile Radius) / Gap Analysis Results

The data indicates that Oil City and the Surrounding Area (8 Mile Radius) may be able to support a furniture and home furnishing store, food and beverage store, clothing and clothing accessory store, sporting goods, hobby and music store, general merchandise store, and a food service and drinking place. The data also indicates that Oil City and the Surrounding Area is meeting a regional demand for automotive and tire sales, electronics and appliance stores, building material and garden equipment stores, health and personal care stores, gasoline stations, as well general merchandise stores. **Utilizing a gap analysis provides an initial indicator for retail and services opportunities for a selected region, therefore further market study and analysis is considered prudent.**



Table G.1-5: Oil City Surrounding Area (8 Mile Radius) Opportunity Gap – Opportunity Surplus

<i>Oil City Surrounding Area (8 Mile Radius) Opportunity Gap – Opportunity Surplus</i>
<p><u>Opportunity Gaps:</u></p> <p>Opportunities for new or expanded stores. Local resident demand exceeds local store supply of goods or services for the following:</p> <ul style="list-style-type: none">• \$4.6 million for Furniture and Home Furnishings• \$12.1 million for Food and Beverage Store products (grocery, specialty foods, beer, wine, & liquor stores)• \$9.3 million for Clothing and Clothing Accessory products (clothing, shoe, jewelry, luggage, and leather stores)• \$3.7 million for Sporting Goods, Hobby, Book, Music products (sporting goods, books, periodical, and musical instrument stores)• \$0.2 million for Miscellaneous Store products (florists, office supplies, gifts, and used merchandise stores)• \$26.7 million for Non-Store Retailers• \$26.6 for Food Service and Drinking Places (full service restaurants, limited service restaurants, special food services, and drinking places) <p><u>Opportunity Surplus:</u></p> <p>Opportunities to meet regional demand. Local store supply of goods and services in this area exceeds local resident demand. This indicates that people from outside the area come here to purchase the following products.</p> <ul style="list-style-type: none">• \$17.9 million for Motor Vehicle and Parts Dealers (automotive dealers)• \$3.9 million for Electronics and Appliances (appliance, electronic, computer and software, camera equipment stores)• \$15.9 million for Building Materials, Garden Equipment Store products• \$1.8 million for Health and Personal Care Store products (health and personal care merchandise from fixed point-of-sale locations – which may include Doctors, Physicians, Counselors, as staff)• \$0.3 million for Gasoline Stations (stations with or without convenience stores)• \$45.5 million for General Merchandise Store products (department stores)

Source: 2010 Claritas Inc., Gap Report



Factors such as location as well as local and regional demand must be further analyzed through a feasibility study by the private sector to validate the potential for the following additional business establishments and number of employees. Current land use regulations with respect to retail favor small to medium sized retail operations.

Table G.1-6: Oil City Surrounding Area (8 Mile Radius) Business Overview – Existing Conditions

<i>Oil City Surrounding Area (8 Mile Radius) Business Overview</i>		
Business Description	Total Establishments	Total Employees
Industries (All)	1,601	21,620
Industries (Private Sector)	1,262	17,285
<i>Industries (Government and Non-Profit)</i>	399	4,335
Retail (All Retail)	324	3,861
Building Materials and Garden Supply	16	174
General Merchandise Stores	13	746
Food Stores	29	377
Auto Dealers and Gas Stations	54	415
Apparel and Accessory Stores	11	37
Home Furniture, Furnishings and Equipment	31	128
Eating and Drinking Places	85	1,084
Miscellaneous Retail Stores	85	900
Service (All)	687	7,622
Hotel and Other Lodging	10	138
Personal Services	158	505
Business Services	89	2,029
Motion Picture and Amusement	32	197
Health Services	142	2,297
Legal Services	32	138
Educational Services	30	809
Social Services	71	1,020
Misc, Membership Orgs and Non-classified	123	489

Source: 2010 Claritas Inc.

Retail Stores	Oil City Study Area			Oil City (2 Mile Radius)			Oil City Surrounding Area (8 Mile Radius)		
	2009 Demand (Customer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Shortage (388,932)	2009 Demand (Customer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Shortage (1,286,314)	2009 Demand (Customer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Shortage (2,048,248)
Total Retail Sales Fuel Filling and Drinking Places	5,076,059	5,464,991	(388,932)	183,304,435	93,138,280	90,166,155	488,527,350	490,576,098	(2,048,248)
Motor Vehicle and Parts Dealers-441	627,438	163,641	463,797	24,507,078	13,715,880	10,791,198	65,146,266	83,080,937	(17,934,671)
Automotive Dealers-4411	540,806	62,539	478,267	21,109,234	9,559,743	11,549,491	55,920,783	61,150,865	(5,221,082)
Other Motor Vehicle Dealers-4412	23,484	0	23,484	984,183	2,377,419	(1,393,236)	2,720,778	9,731,880	(7,011,102)
Automotive Parts/Accessories-4413	63,149	101,102	(37,953)	2,413,661	1,778,719	634,942	6,495,705	12,198,192	(5,702,487)
Furniture and Home Furnishings Stores-442	80,810	16,291	64,519	3,317,403	332,292	2,985,111	9,119,306	4,486,357	4,632,949
Furniture Stores-4421	43,494	0	43,494	1,755,470	56,672	1,698,798	4,815,649	2,254,357	2,561,292
Home Furnishings Stores-4422	37,316	16,291	21,025	1,561,934	275,620	1,286,314	4,303,657	2,232,000	2,071,657
Electronics and Appliance Stores-443	101,654	209,572	(107,918)	3,770,459	2,636,535	1,133,924	10,126,583	14,012,077	(3,885,494)
Appliances, TVs, Electronics Stores-44311	78,046	209,572	(131,526)	2,864,546	1,923,156	941,390	7,681,878	4,827,127	2,854,751
Household Appliances Stores-443111	17,885	209,572	(191,687)	703,566	1,435,686	(732,120)	1,919,549	1,546,126	373,423
Radio, Television, Electronics Stores-443112	60,161	0	60,161	2,160,980	487,470	1,673,510	5,762,329	3,281,001	2,481,328
Computer and Software Stores-44312	20,642	0	20,642	770,724	713,379	57,345	2,067,672	9,184,950	(7,117,278)
Camera and Photographic Equipment Stores-44313	2,966	0	2,966	133,190	0	133,190	377,033	0	377,033
Building Material, Garden Equip Stores-444	420,122	711,594	(291,472)	18,501,691	20,620,288	(2,118,597)	51,698,559	67,583,666	(15,885,107)
Building Material and Supply Dealers-4441	387,420	711,594	(324,174)	17,086,000	18,163,288	(1,076,888)	47,746,546	62,780,563	(15,034,017)
Home Centers-44411	158,170	0	158,170	6,939,616	358,284	6,581,332	19,377,754	19,029,375	348,379
Paint and Wallpaper Stores-44412	7,440	303,916	(296,476)	353,905	2,082,000	(1,728,095)	1,003,513	3,470,001	(2,466,488)
Hardware Stores-44413	32,852	0	32,852	1,443,303	1,881,458	(438,155)	4,044,573	3,080,827	963,746
Other Building Materials Dealers-44419	188,959	407,678	(218,719)	8,348,077	13,841,546	(5,493,469)	23,320,706	37,200,340	(13,879,634)
Building Materials, Lumberyards-444191	74,637	159,490	(84,853)	3,292,335	5,415,027	(2,122,692)	9,190,751	14,553,348	(5,362,597)
Lawn, Garden Equipment, Supplies Stores-4442	32,702	0	32,702	1,414,790	2,457,000	(1,042,210)	3,952,013	4,803,103	(851,090)
Outdoor Power Equipment Stores-44421	4,552	0	4,552	201,692	0	201,692	564,643	2,346,103	(1,781,460)
Nursery and Garden Centers-44422	28,150	0	28,150	1,213,099	2,457,000	(1,243,901)	3,387,370	2,457,000	930,370
Food and Beverage Stores-445	832,655	2,272,081	(1,439,426)	27,450,594	17,380,652	10,069,942	71,818,408	59,696,167	12,122,241
Grocery Stores-4451	764,421	2,241,827	(1,477,406)	25,150,095	15,280,903	9,869,192	65,779,751	54,283,938	11,495,813
Supermarkets, Grocery (Ex Conv) Stores-44511	723,342	2,182,533	(1,459,191)	23,833,942	15,041,914	8,792,028	62,351,745	53,333,149	9,018,596
Convenience Stores-44512	41,079	59,294	(18,215)	1,316,154	238,989	1,077,165	3,428,006	950,789	2,477,217
Specialty Food Stores-4452	23,597	30,254	(6,657)	765,372	299,372	466,000	1,992,555	622,862	1,369,693
Beer, Wine and Liquor Stores-4453	44,637	0	44,637	1,535,127	1,800,377	(265,250)	4,046,302	4,789,267	(743,065)
Health and Personal Care Stores-446	261,666	1,227,812	(966,146)	9,792,648	7,330,883	2,461,765	26,268,970	28,035,829	(1,766,859)
Pharmacies and Drug Stores-44611	226,425	1,219,036	(992,611)	8,462,150	7,171,850	1,290,300	22,686,751	24,540,804	(1,854,053)
Cosmetics, Beauty Supplies, Perfume Stores-44612	9,201	0	9,201	348,959	0	348,959	937,048	1,288,999	(351,951)
Optical Goods Stores-44613	8,939	8,786	153	343,255	120,376	222,879	934,423	963,002	(28,579)
Other Health and Personal Care Stores-44619	17,100	0	17,100	638,284	38,657	599,627	1,709,848	1,234,024	475,824
Gasoline Stations-447	696,896	0	696,896	23,646,839	19,267,706	4,379,133	62,527,202	62,795,359	(268,157)
Gasoline Stations With Conv Stores-44711	525,715	0	525,715	17,703,217	19,267,706	(1,564,489)	46,742,173	53,752,028	(7,009,855)
Other Gasoline Stations-44719	171,180	0	171,180	5,943,622	0	5,943,622	15,785,029	9,043,331	6,741,698
Clothing and Clothing Accessories Stores-448	211,583	1,936	209,647	7,560,397	561,598	6,998,799	20,117,672	10,823,976	9,293,696
Clothing Stores-4481	153,573	1,936	151,637	5,484,886	462,412	5,022,484	14,610,390	6,380,511	8,229,879
Men's Clothing Stores-44811	10,799	1,936	8,863	363,786	98,554	265,232	959,433	232,126	727,307
Women's Clothing Stores-44812	35,881	0	35,881	1,297,747	363,858	933,889	3,582,088	2,352,317	1,229,771
Children, Infants Clothing Stores-44813	10,062	0	10,062	332,400	0	332,400	851,879	0	851,879
Family Clothing Stores-44814	83,618	0	83,618	2,972,888	0	2,972,888	7,910,608	3,768,001	4,142,607
Clothing Accessories Stores-44815	3,403	0	3,403	126,545	0	126,545	340,908	0	340,908

Retail Stores	Oil City Study Area			Oil City (2 Mile Radius)			Oil City Surrounding Area (8 Mile Radius)		
	2009 Demand (Consumer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Surplus	2009 Demand (Consumer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Surplus	2009 Demand (Consumer Expenditures)	2009 Supply (Retail Sales)	Opportunity Gap/Surplus
Other Clothing Stores-44819	9,811	0	9,811	339,529	0	339,529	965,473	28,068	937,405
Shoe Stores-4482	34,141	0	34,141	1,126,097	0	1,126,097	2,930,751	1,765,463	1,165,288
Jewelry, Luggage, Leather Goods Stores-4483	23,869	0	23,869	949,404	99,186	850,218	2,576,532	2,678,001	(101,469)
Jewelry Stores-44831	21,309	0	21,309	856,591	99,186	757,405	2,329,114	2,678,001	(348,887)
Luggage and Leather Goods Stores-44832	2,560	0	2,560	92,813	0	92,813	247,418	0	247,418
Sporting Goods, Hobby, Book, Music Stores-451	72,067	6,662	65,405	2,735,205	387,261	2,347,944	7,351,384	3,663,058	3,688,326
Sporting Goods, Hobby, Musical Inst. Stores-4511	46,086	6,291	39,795	1,820,800	85,412	1,735,388	4,952,686	2,049,219	2,903,467
Sporting Goods Stores-45111	18,882	0	18,882	789,474	0	789,474	2,182,977	523,673	1,659,304
Hobby, Toys and Games Stores-45112	18,258	0	18,258	692,948	0	692,948	1,837,445	1,064,001	793,444
Sew/Needlework/Piece Goods Stores-45113	3,894	6,291	(2,397)	158,256	85,412	72,844	431,772	341,649	90,123
Musical Instrument and Supplies Stores-45114	5,052	0	5,052	180,212	0	180,212	480,531	119,896	360,635
Book, Periodical and Music Stores-4512	25,981	371	25,610	914,315	301,849	612,466	2,398,698	1,613,839	784,859
Book Stores and News Dealers-45121	18,349	371	17,978	644,239	19,097	625,142	1,680,611	859,839	820,772
Book Stores-451211	17,175	0	17,175	603,402	0	603,402	1,572,758	812,999	759,759
News Dealers and Newsstands-451212	1,174	371	803	40,838	19,097	21,741	107,853	46,840	61,013
Pre-recorded Tapes, CDs, Record Stores-45122	7,632	0	7,632	270,076	282,752	(12,676)	718,087	754,000	(35,913)
General Merchandise Stores-452	661,580	61,647	599,933	23,617,502	844,632	22,772,870	62,985,165	108,507,918	(45,522,753)
Department Stores Excl. Lensed Depts-4521	297,147	0	297,147	10,905,354	0	10,905,354	29,241,778	104,226,073	(74,984,895)
Other General Merchandise Stores-4529	364,434	61,647	302,787	12,712,148	844,632	11,867,516	33,743,387	4,281,245	29,462,142
Miscellaneous Store Retailers-453	114,571	76,931	37,640	4,161,728	2,417,495	1,744,233	11,260,181	11,026,051	234,130
Florida-4531	6,747	0	6,747	296,631	17,768	278,863	828,691	200,198	628,493
Office Supplies, Stationery, Gift Stores-4532	48,516	0	48,516	1,781,561	538,461	1,243,100	4,763,143	3,606,006	1,157,137
Office Supplies and Stationery Stores-45321	27,279	0	27,279	1,004,851	497,052	507,799	2,688,680	3,099,806	(411,126)
Gift, Novelty and Souvenir Stores-45322	21,237	0	21,237	776,709	41,409	735,300	2,074,463	506,200	1,568,263
Used Merchandise Stores-4533	9,861	21,929	(12,118)	363,568	130,848	232,720	972,894	841,155	131,739
Other Miscellaneous Store Retailers-4539	49,447	54,951	(5,504)	1,719,968	1,730,418	(10,450)	4,695,453	6,378,692	(1,683,239)
Non-Store Retailers-454	395,307	4,512	390,795	14,089,343	30,909	14,058,434	37,483,592	10,796,986	26,686,606
Foodservice and Drinking Places-722	599,711	712,313	(112,602)	20,153,547	7,612,148	12,541,399	52,624,062	26,067,718	26,556,344
Full-Service Restaurants-7221	266,438	132,436	134,002	8,980,830	2,818,128	6,162,702	23,452,989	14,134,859	9,318,130
Limited-Service Eating Places-7222	256,881	429,932	(173,051)	8,571,840	2,137,125	6,434,715	22,373,734	8,148,332	14,225,402
Special Foodservices-7223	51,272	20,491	30,781	1,716,248	887,533	828,715	4,481,708	982,627	3,499,081
Drinking Places-Alcoholic Beverages-7224	25,121	129,454	(104,333)	884,628	1,769,362	(884,734)	2,315,631	2,801,899	(486,268)
GAFO *	1,176,210	296,107	880,103	42,782,527	5,360,729	37,421,798	114,463,253	145,099,391	(30,636,138)
General Merchandise Stores-445	661,580	61,647	599,933	23,617,502	844,632	22,772,870	62,985,165	108,507,918	(45,522,753)
Clothing and Clothing Accessories Stores-448	211,583	1,936	209,647	7,560,397	561,598	6,998,799	20,117,672	10,823,976	9,293,696
Furniture and Home Furnishings Stores-442	80,810	16,291	64,519	3,317,403	332,292	2,985,111	9,110,806	4,486,357	4,624,449
Electronics and Appliance Stores-443	101,654	209,572	(107,918)	3,770,459	2,636,535	1,133,924	10,126,583	14,012,077	(3,885,494)
Sporting Goods, Hobby, Book, Music Stores-451	72,067	6,662	65,405	2,735,205	387,261	2,347,944	7,351,384	3,663,058	3,688,326
Office Supplies, Stationery, Gift Stores-4532	48,516	0	48,516	1,781,561	538,461	1,243,100	4,763,143	3,606,006	1,157,137

* GAFO (General merchandise, Apparel, Furniture and Other) represents sales at stores that sell merchandise normally sold in department stores.

Claritas RMP data is derived from two major sources of information. The demand data is derived from the Consumer Expenditure Survey (CE Survey), which is fielded by the U.S. Bureau of Labor Statistics (BLS). The supply data is derived from the Census of Retail Trade (CRT), which is made available by the U.S. Census.

The difference between demand and supply represents the opportunity gap or surplus available for each retail outlet in the specified reporting geography. When the demand is greater than the supply, there is an opportunity gap (surplus) for that retail outlet. For example, a positive value signifies an opportunity gap, while a negative value signifies a surplus.

Source: 2008 Claritas Inc.



Appendix G.1.4: Oil City Study Area



Retail Store Type

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	105,187	0.00	133,272	0.00	37,540	49,580	5.34	78
All Retail Stores*	63,772	60.63	79,083	59.34	22,760	29,421	4.80	79
Grocery Stores	13,924	13.24	16,495	12.38	4,969	6,137	3.69	93
Convenience Stores	792	0.75	925	0.69	283	344	3.36	99
Health & Personal Care	4,439	4.22	5,614	4.21	1,584	2,089	5.29	75
Bldg Material & Garden Equip & Supplies Dealers	1,605	1.53	1,905	1.43	573	709	3.74	70
Hardware Stores	190	0.18	234	0.18	68	87	4.66	67
Home Centers	725	0.69	890	0.67	259	331	4.57	68
Nursery & Garden Centers	232	0.22	277	0.21	83	103	3.88	74
Lawn & Garden Equipment & Supplies Dealers	253	0.24	301	0.23	90	112	3.75	73
General Merchandise Stores	10,911	10.37	12,796	9.60	3,894	4,760	3.45	79
Department Stores (Excluding Leased)	5,138	4.88	6,033	4.53	1,834	2,244	3.48	74
Warehouse Club, Superstores, Other Genl Merch Stores	5,844	5.56	6,855	5.14	2,086	2,550	3.46	83
Full-Service Restaurants	1,974	1.88	3,209	2.41	704	1,194	12.52	88
Fast Food Restaurants	1,725	1.64	3,013	2.26	616	1,121	14.92	90
Eating Places	5,837	5.55	10,188	7.64	2,083	3,790	14.91	89
Drinking Places	145	0.14	184	0.14	52	69	5.40	81
Furniture Stores	954	0.91	1,223	0.92	341	455	5.63	65
Other Home Furnishings Stores	689	0.66	871	0.65	246	324	5.27	67
Household Appliance Stores	250	0.24	322	0.24	89	120	5.80	71
Radio/TV/Other Electronics Stores	833	0.79	1,005	0.75	297	374	4.14	67
Computer and Software Stores	319	0.30	373	0.28	114	139	3.40	66
Camera/Photographic Supply Stores	54	0.05	56	0.04	19	21	0.65	55
Clothing & Clothing Accessory Store	4,063	3.86	4,650	3.49	1,450	1,730	2.89	73
Clothing Accessory Stores	60	0.06	71	0.05	21	26	3.64	70
Shoe Stores	612	0.58	644	0.48	219	239	1.02	80
Jewelry Stores	774	0.74	1,027	0.77	276	382	6.54	65
Office Supplies and Stationery Stores	217	0.21	268	0.20	77	100	4.76	73
Gift, Novelty, & Souvenir Stores	213	0.20	254	0.19	76	94	3.87	76
Hobby, Toy and Game Shops	344	0.33	378	0.28	123	141	1.95	67
Sew/Needlework/Piece Goods Stores	94	0.09	104	0.08	34	39	2.03	62
Florists	538	0.51	626	0.47	192	233	3.25	62
Book Stores	473	0.45	476	0.36	169	177	0.15	68
Sporting Goods Stores	432	0.41	501	0.38	154	186	3.17	54
Sporting Goods, Hobby, Book & Music Stores	1,390	1.32	1,528	1.15	496	568	1.98	63
Luggage & Leather Goods Stores	48	0.05	77	0.06	17	28	11.91	61



Auto Dealers	9,272	8.81	12,102	9.08	3,309	4,502	6.10	66
Automotive Part, Accessories, & Tire Stores	622	0.59	624	0.47	222	232	0.05	76
Gasoline Stations with Convenience Stores	5,863	5.57	8,248	6.19	2,092	3,069	8.14	94
Gasoline Stations without Convenience Stores	1,548	1.47	2,426	1.82	553	902	11.34	92
Electronic Shopping & Mail Order	2,394	2.28	2,886	2.17	854	1,074	4.12	69
Total Accommodation & Food Services	7,954	7.56	13,256	9.95	2,839	4,932	13.33	84
GAFO: General Merch, Apparel, Furniture, Other	19,387	18.43	22,838	17.14	6,919	8,496	3.56	74

Source: 2009 Claritas Inc.

Food Away From Home

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	105,187	0.00	133,272	0.00	37,540	49,580	5.34	78
Food Away from Home	7,163	6.81	12,513	9.39	2,556	4,655	14.94	90
Lunch	1,683	1.60	4,267	3.20	601	1,587	30.71	83
Fast Food	989	0.94	2,518	1.89	353	937	30.91	84
Full Service	694	0.66	1,749	1.31	248	651	30.43	81
Dinner	2,974	2.83	3,986	2.99	1,061	1,483	6.81	92
Fast Food	966	0.92	1,218	0.91	345	453	5.23	91
Full Service	2,008	1.91	2,768	2.08	717	1,030	7.56	92
Breakfast/Brunch	615	0.58	1,550	1.16	219	577	30.43	92
Fast Food	328	0.31	717	0.54	117	267	23.65	93
Full Service	286	0.27	833	0.63	102	310	38.21	90
Snacks/Nonalcoholic Beverages	1,664	1.58	2,502	1.88	594	931	10.06	92
Catered Affairs	227	0.22	209	0.16	81	78	-1.62	104
Alcoholic Bev. Away from Home	303	0.29	323	0.24	108	120	1.32	78
Beer and Ale	128	0.12	147	0.11	46	55	2.94	75
Wine	79	0.07	72	0.05	28	27	-1.74	84
Other Alcohol	96	0.09	104	0.08	34	39	1.64	77

Source: 2009 Claritas Inc.



Appendix G.1.5: Oil City (2 Mile Radius)



Retail Store Type

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	216,267	0.00	276,809	0.00	39,158	51,730	5.60	81
All Retail Stores*	130,215	60.21	163,383	59.02	23,577	30,533	5.09	82
Grocery Stores	27,845	12.88	33,273	12.02	5,042	6,218	3.90	94
Convenience Stores	1,568	0.72	1,851	0.67	284	346	3.61	99
Health & Personal Care	9,297	4.30	11,821	4.27	1,683	2,209	5.43	80
Bldg Material & Garden Equip & Supplies Dealers	3,463	1.60	4,158	1.50	627	777	4.01	76
Hardware Stores	411	0.19	510	0.18	74	95	4.83	74
Home Centers	1,568	0.72	1,946	0.70	284	364	4.82	75
Nursery & Garden Centers	494	0.23	594	0.21	89	111	4.05	80
Lawn & Garden Equipment & Supplies Dealers	540	0.25	646	0.23	98	121	3.91	79
General Merchandise Stores	22,220	10.27	26,352	9.52	4,023	4,925	3.72	81
Department Stores (Excluding Leased)	10,523	4.87	12,510	4.52	1,905	2,338	3.78	77
Warehouse Club, Superstores, Other Genl Merch Stores	11,844	5.48	14,035	5.07	2,144	2,623	3.70	85
Full-Service Restaurants	4,003	1.85	6,596	2.38	725	1,233	12.96	91
Fast Food Restaurants	3,408	1.58	6,024	2.18	617	1,126	15.35	90
Eating Places	11,732	5.42	20,735	7.49	2,124	3,875	15.35	91
Drinking Places	296	0.14	380	0.14	54	71	5.66	83
Furniture Stores	2,029	0.94	2,625	0.95	367	491	5.88	71
Other Home Furnishings Stores	1,477	0.68	1,893	0.68	267	354	5.63	73
Household Appliance Stores	526	0.24	687	0.25	95	128	6.11	76
Radio/TV/Other Electronics Stores	1,707	0.79	2,092	0.76	309	391	4.51	69
Computer and Software Stores	660	0.31	783	0.28	120	146	3.73	69
Camera/Photographic Supply Stores	116	0.05	121	0.04	21	23	0.82	60
Clothing & Clothing Accessory Store	8,203	3.79	9,531	3.44	1,485	1,781	3.24	75
Clothing Accessory Stores	122	0.06	147	0.05	22	28	4.10	72
Shoe Stores	1,203	0.56	1,281	0.46	218	239	1.30	79
Jewelry Stores	1,655	0.77	2,225	0.80	300	416	6.88	71
Office Supplies and Stationery Stores	452	0.21	566	0.20	82	106	5.04	78
Gift, Novelty, & Souvenir Stores	438	0.20	530	0.19	79	99	4.18	80
Hobby, Toy and Game Shops	712	0.33	793	0.29	129	148	2.27	71
Sew/Needlework/Piece Goods Stores	199	0.09	222	0.08	36	41	2.29	67
Florists	1,180	0.55	1,382	0.50	214	258	3.43	69
Book Stores	960	0.44	980	0.35	174	183	0.42	70
Sporting Goods Stores	908	0.42	1,071	0.39	164	200	3.57	58
Sporting Goods, Hobby, Book & Music Stores	2,864	1.32	3,195	1.15	519	597	2.31	66
Luggage & Leather Goods Stores	103	0.05	167	0.06	19	31	12.47	67



Auto Dealers	19,171	8.86	25,402	9.18	3,471	4,747	6.50	69
Automotive Part, Accessories, & Tire Stores	1,289	0.60	1,308	0.47	233	244	0.29	80
Gasoline Stations with Convenience Stores	11,729	5.42	16,736	6.05	2,124	3,128	8.54	96
Gasoline Stations without Convenience Stores	3,132	1.45	4,968	1.79	567	928	11.72	94
Electronic Shopping & Mail Order	4,972	2.30	6,067	2.19	900	1,134	4.40	72
Total Accommodation & Food Services	16,160	7.47	27,185	9.82	2,926	5,080	13.65	87
GAFO: General Merch, Apparel, Furniture, Other	39,645	18.33	47,336	17.10	7,178	8,846	3.88	77

Source: 2009 Claritas Inc.

Food Away From Home

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	216,267	0.00	276,809	0.00	39,158	51,730	5.60	81
Food Away from Home	14,406	6.66	25,473	9.20	2,608	4,760	15.36	92
Lunch	3,392	1.57	8,704	3.14	614	1,627	31.32	85
Fast Food	1,959	0.91	5,050	1.82	355	944	31.56	84
Full Service	1,433	0.66	3,654	1.32	259	683	31.00	85
Dinner	6,011	2.78	8,162	2.95	1,088	1,525	7.16	94
Fast Food	1,904	0.88	2,429	0.88	345	454	5.52	91
Full Service	4,107	1.90	5,733	2.07	744	1,071	7.91	96
Breakfast/Brunch	1,237	0.57	3,163	1.14	224	591	31.14	94
Fast Food	646	0.30	1,427	0.52	117	267	24.17	93
Full Service	591	0.27	1,736	0.63	107	324	38.77	95
Snacks/Nonalcoholic Beverages	3,287	1.52	4,999	1.81	595	934	10.42	92
Catered Affairs	480	0.22	445	0.16	87	83	-1.43	111
Alcoholic Bev. Away from Home	621	0.29	670	0.24	112	125	1.57	81
Beer and Ale	263	0.12	305	0.11	48	57	3.18	78
Wine	161	0.07	149	0.05	29	28	-1.47	87
Other Alcohol	197	0.09	216	0.08	36	40	1.91	80

Source: 2009 Claritas Inc.



Appendix G.1.6: Oil City Surrounding Area (8 Mile Radius)



Retail Store Type

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	574,036	0.01	736,347	0.01	40,706	53,783	5.66	85
All Retail Stores*	346,115	60.29	435,314	59.12	24,544	31,796	5.15	85
Grocery Stores	72,792	12.68	87,137	11.83	5,162	6,365	3.94	96
Convenience Stores	4,077	0.71	4,819	0.65	289	352	3.64	101
Health & Personal Care	24,969	4.35	31,951	4.34	1,771	2,334	5.59	84
Bldg Material & Garden Equip & Supplies Dealers	9,694	1.69	11,646	1.58	687	851	4.03	84
Hardware Stores	1,155	0.20	1,430	0.19	82	104	4.77	81
Home Centers	4,395	0.77	5,456	0.74	312	399	4.83	82
Nursery & Garden Centers	1,380	0.24	1,656	0.22	98	121	4.00	87
Lawn & Garden Equipment & Supplies Dealers	1,511	0.26	1,803	0.24	107	132	3.87	86
General Merchandise Stores	59,133	10.30	70,291	9.55	4,193	5,134	3.77	85
Department Stores (Excluding Leased)	28,161	4.91	33,556	4.56	1,997	2,451	3.83	80
Warehouse Club, Superstores, Other Genl Merch Stores	31,368	5.46	37,264	5.06	2,224	2,722	3.76	89
Full-Service Restaurants	10,496	1.83	17,372	2.36	744	1,269	13.10	93
Fast Food Restaurants	8,819	1.54	15,607	2.12	625	1,140	15.40	91
Eating Places	30,630	5.34	54,299	7.37	2,172	3,966	15.46	93
Drinking Places	776	0.14	999	0.14	55	73	5.76	86
Furniture Stores	5,548	0.97	7,187	0.98	393	525	5.91	76
Other Home Furnishings Stores	4,056	0.71	5,227	0.71	288	382	5.77	78
Household Appliance Stores	1,438	0.25	1,883	0.26	102	137	6.19	82
Radio/TV/Other Electronics Stores	4,560	0.79	5,608	0.76	323	410	4.59	72
Computer and Software Stores	1,773	0.31	2,109	0.29	126	154	3.78	72
Camera/Photographic Supply Stores	323	0.06	335	0.05	23	24	0.72	66
Clothing & Clothing Accessory Store	21,792	3.80	25,317	3.44	1,545	1,849	3.24	78
Clothing Accessory Stores	330	0.06	398	0.05	23	29	4.11	76
Shoe Stores	3,130	0.55	3,324	0.45	222	243	1.24	81
Jewelry Stores	4,512	0.79	6,100	0.83	320	446	7.04	76
Office Supplies and Stationery Stores	1,216	0.21	1,526	0.21	86	111	5.09	82
Gift, Novelty, & Souvenir Stores	1,169	0.20	1,419	0.19	83	104	4.27	83
Hobby, Toy and Game Shops	1,910	0.33	2,137	0.29	135	156	2.38	74
Sew/Needlework/Piece Goods Stores	543	0.09	607	0.08	38	44	2.36	71
Florists	3,332	0.58	3,897	0.53	236	285	3.39	77
Book Stores	2,490	0.43	2,539	0.34	177	185	0.39	71
Sporting Goods Stores	2,480	0.43	2,932	0.40	176	214	3.64	62
Sporting Goods, Hobby, Book & Music Stores	7,638	1.33	8,543	1.16	542	624	2.37	69
Luggage & Leather Goods Stores	283	0.05	462	0.06	20	34	12.67	72



Auto Dealers	50,978	8.88	67,659	9.19	3,615	4,942	6.54	72
Automotive Part, Accessories, & Tire Stores	3,478	0.61	3,534	0.48	247	258	0.32	85
Gasoline Stations with Convenience Stores	30,856	5.38	44,150	6.00	2,188	3,225	8.62	99
Gasoline Stations without Convenience Stores	8,313	1.45	13,199	1.79	590	964	11.75	98
Electronic Shopping & Mail Order	13,361	2.33	16,370	2.22	947	1,196	4.50	76
Total Accommodation & Food Services	42,558	7.41	71,651	9.73	3,018	5,233	13.67	89
GAFO: General Merch, Apparel, Furniture, Other	105,824	18.44	126,707	17.21	7,504	9,255	3.95	80

Note: All Retail Stores Total is NOT the sum of the other line items. Some line items are sub-categories of multiple line items and could appear in more than one line item.

Source: 2009 Claritas Inc.

Food Away From Home

Product Category	2009 Aggregate Expenditure Estimate (in 1000s)	% Comp	2014 Aggregate Expenditure Estimate (in 1000s)	% Comp	2009 Annual Avg/ HH	2014 Annual Avg/ HH	Avg Annual % Growth	2009 Index to USA
Total Specified Consumer Expenditures - USA	5,553,445,486		7,746,578,225		48,163	63,874	7.90	
Total Specified Consumer Expenditures (AREA)	574,036	0.01	736,347	0.01	40,706	53,783	5.66	85
Food Away from Home	37,647	6.56	66,736	9.06	2,670	4,874	15.45	94
Lunch	8,884	1.55	22,857	3.10	630	1,669	31.46	87
Fast Food	5,089	0.89	13,134	1.78	361	959	31.62	86
Full Service	3,795	0.66	9,723	1.32	269	710	31.24	89
Dinner	15,732	2.74	21,437	2.91	1,116	1,566	7.25	96
Fast Food	4,914	0.86	6,278	0.85	348	459	5.55	92
Full Service	10,817	1.88	15,159	2.06	767	1,107	8.03	99
Breakfast/Brunch	3,231	0.56	8,297	1.13	229	606	31.36	96
Fast Food	1,664	0.29	3,676	0.50	118	269	24.18	93
Full Service	1,567	0.27	4,621	0.63	111	338	38.98	98
Snacks/Nonalcoholic Beverages	8,501	1.48	12,933	1.76	603	945	10.43	93
Catered Affairs	1,300	0.23	1,211	0.16	92	88	-1.36	118
Alcoholic Bev. Away from Home	1,625	0.28	1,760	0.24	115	129	1.66	83
Beer and Ale	689	0.12	801	0.11	49	59	3.25	80
Wine	419	0.07	391	0.05	30	29	-1.36	89
Other Alcohol	516	0.09	568	0.08	37	41	2.00	82

Source: 2009 Claritas Inc.



Appendix H: Access Management

Introduction to Access Management and Sample Access Management Ordinance for Oil City

Access management is a means of controlling the ways in which vehicles can access major roadways, using techniques such as limiting the number of driveways and intersections with local roadways. Although it involves a sometimes complex balance of the need for local accessibility with the need for overall mobility, properly managed access is vital to the safety and efficiency of your community's road network. Conversely, when highway access points are not managed effectively, accidents and congestion increase and a community's quality of life can deteriorate.

The Transportation Research Board's (TRB) Access Management Manual defines access management as: *..the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals. The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system.*

10 Principals of Access Management

- **Provide a specialized roadway system**
- **Limit direct access to major roadways**
- **Promote intersection hierarchy**
- **Locate signals to favor through movements**
- **Preserve the functional area of intersections and interchanges**
- **Limit the number of conflict points**
- **Separate conflict areas**
- **Remove turning vehicles from through-traffic lanes**
- **Use non traversable medians to manage turn movements**
- **Provide a supporting street and circulation system**

Benefits of Access Management

An effectively implemented access management program can improve public safety and reduce traffic congestion. Studies show that as the number of access points increases, crash rates increase. In addition to fatalities and injuries, roadway incidents are responsible for nearly 25 percent of delays.

Access management ordinances only apply to new or altered development, not existing homes and businesses, so they will not immediately solve access problems that have already emerged. However, land uses change over time. For example, a house may become a business, or a current use may wish to expand. Having access management ordinances and a plan in place ensures that when changes do occur, sound access management techniques can be instituted.

Model Ordinance Tiers

The access management practices have been categorized into three tiers of model ordinance language based on ease of implementation; timeline to achieve desired outcomes; and the level of coordination required between the municipality, property owners, affected stakeholders, and PennDOT.

Tier 1

Tier 1 practices relate to the number and location of driveways and basic design elements that should be evaluated for every access. These practices should be implemented during the land development approval process and require coordination between the municipality, property owner, and possibly PennDOT. Additional practices such as shared driveways and internal access to outparcels attempt to consolidate access points among adjacent property owners. The practices included in this tier are generally the easiest to implement because they cost the least, take the least time to implement, and require the least amount of coordination between the property owner, municipality, and PennDOT.

- Number of Driveways
- Corner Clearance
- Safe Sight Distance
- Driveway Channelization
- Joint and Cross Access
- Access to Outparcels
- Driveway Throat Length
- Driveway Throat Width
- Driveway Radius
- Driveway Profile

Tier 2

Tier 2 practices involve more complex design elements for individual driveways, such as left turn lanes and deceleration lanes. Other practices, such as driveway and signalized intersection spacing, involve multiple driveways or off-site intersections. The practices in this tier can be implemented during the land development approval process, but they could require a higher level of coordination among the municipality, multiple property owners, and PennDOT. Some of the practices could require implementation through multiple land development approvals or a comprehensive project involving several properties. The practices in this tier can be more costly and require a longer period of time to implement than the practices in Tier 1 due to the participation of multiple property owners.

- Auxiliary Lanes
- Left Turn Lane
- Acceleration Lane
- Driveway Spacing
- Signalized Intersection Spacing
- Driveway Clearance from Interchange Ramps

Tier 3

Tier 3 includes roadway design and planning practices such as medians, two-way center left turn lanes, setbacks, frontage roads involving multiple driveways, intersections, and properties. These practices cover a much larger corridor or area and typically require the highest degree of coordination among property owners, the municipality, and PennDOT. In addition, this tier contains planning and regulatory tools such as the official map and zoning overlay districts to implement these types of practices. In most situations, these practices would require capital funding for implementation. These types of practices could require years to fully implement. These practices are more expensive, require much higher levels

of coordination between stakeholders, and much more time to implement than Tier 1 and Tier 2 practices.

- Overlay Districts
- Official Map
- Two-way Left Turn Lanes
- Frontage/Service Roads
- Non-traversable Medians
- Setbacks
- Bonuses and Incentives
- Pre-existing Access

References

Access Management Model Ordinances for Pennsylvania Municipalities Handbook, PennDOT
Access Management Manual, Transportation Research Board

ACCESS MANAGEMENT ORDINANCE FOR OIL CITY

(adapted from Access Management Model Ordinances for Pennsylvania Municipalities Handbook, PennDOT)

Purpose

The purpose of this ordinance is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system. Access management encompasses the careful planning of the location, design and operation of driveways, median openings, interchanges, and street connections. If access systems are not properly designed, the primary transportation network, including arterials and highways, will be unable to accommodate the access needs of development and retain their primary transportation function.

This ordinance is intended to promote safe and efficient travel within Oil City by limiting the number of conflict points, providing safe spacing standards between driveways, encouraging shared access between abutting properties, and ensuring safe access by emergency vehicles.

Applicability

This ordinance shall apply to all arterials and collectors within the City, as identified herein, and to all properties which abut these roadways.

List proposed streets

Conformance with Plans, Regulations, and Statutes

This ordinance is generally consistent with of the comprehensive plan for Oil City. This ordinance also conforms with the requirements of the Pennsylvania Municipalities Planning Code and meets or exceeds the standards contained in Title 67, Chapter 441 of the Pennsylvania Code titled, Access To And Occupancy Of Highways By Driveways And Local Roads.”

Definitions

85th Percentile Speed – The speed, in miles per hour, which is exceeded by only 15 percent of the drivers traveling on a section of highway.

95th Percentile Queue Length - The queue exceeded at some point during 5 percent of the signal cycles.

Access – A driveway, street, or other means of passage of vehicles between the highway and abutting property, including acceleration and deceleration lanes and such drainage structures as may be necessary for proper construction and maintenance thereof. [67 PA Code Chapter 441]

Average Daily Traffic (ADT) – The total volume of traffic during a number of whole days (more than one day) and less than one year divided by the number of days in that period.

Design Speed – The maximum safe speed that can be maintained over a section of roadway when conditions are so favorable that the design features of the road govern.

Driveway – Every entrance or exit used by vehicular traffic to or from properties abutting a highway. The term includes proposed streets, lanes, alleys, courts, and ways. [67 PA Code Chapter 441]

Egress – The exit of vehicular traffic from abutting properties to a street.

Functional Area – The area beyond the physical intersection of two controlled access facilities that comprises decision and maneuver distance, and the required vehicle storage lengths.

High Volume Driveway – A driveway used or expected to be used by more than 1,500 vehicles per day. [67 PA Code Chapter 441]

Highways, Roads, or Streets – any highways, roads, or streets identified on the legally adopted municipal street or highway plan or the official map that carry vehicular traffic, together with all necessary appurtenances, including bridges, rights-of-way and traffic control improvements. The term shall not include the Interstate Highway System.

Ingress – The entrance of vehicular traffic to abutting properties from a street.

Internal Trips – Site-generated trips that occur between two or more land uses on the subject site without exiting onto the intersecting street.

Level of Service (LOS) – A qualitative measure describing the operational conditions within a section of roadway or at an intersection that includes factors such as speed, travel time, ability to maneuver, traffic interruptions, delay, and driver comfort. Level of service is described as a letter grade system (similar to a school grading system) where delay (in seconds) is equivalent to a certain letter grade from A through F.

Local Road – Every public highway other than a state highway. The term includes existing streets, lanes, alleys, courts, and ways. [67 PA Code Chapter 441]

Low Volume Driveway – A driveway used or expected to be used by more than 25 but less than 750 vehicles per day. [67 PA Code Chapter 441]

Medium Volume Driveway – A driveway used or expected to be used by more than 750 but less than 1,500 vehicles per day. [67 PA Code Chapter 441]

Minimum Use Driveway – A residential or other driveway that is used or expected to be used by not more than 25 vehicles per day. [67 PA Code Chapter 441]

Outparcel – A lot that is adjacent to the roadway that interrupts the frontage of another lot.

Pre-Existing Driveway – Permitted driveways in place at the time of the adoption of this ordinance that do not conform to the standards herein.

Right-of-Way – An area of land, measured from the centerline of the cartway that can be used by the public for travel and the location of utilities.

Right-of-Way Preservation – The acquisition of an area of land, through dedication or easement, needed to accommodate the future widening of the roadway.

Stopping Sight Distance – The distance required by a driver traveling at a given speed to stop the vehicle after an object on the roadway becomes visible to the driver.

Street – Includes street, avenue, boulevard, road, highway, freeway, parkway, lane, alley, viaduct, and any other ways used or intended to be used by vehicular traffic or pedestrians, whether private or public.

Trip – A one-directional vehicular trip to or from a site.

Trip Generation – The total number of vehicular trips going to and from a particular land use on a specific site during a specific time period.

A. Driveways

1) Number of Driveways

- a) Only one access shall be permitted for a property.
- b) An additional access or accesses shall be permitted if the applicant demonstrates that an additional access or additional accesses are necessary to accommodate traffic to and from the site and it can be achieved in a safe and efficient manner.
- c) The municipality shall restrict access to right turn only ingress and egress or to another state maintained road or local road if safe and efficient movements cannot be accommodated.
- d) For a property that abuts two or more roadways, the municipality may restrict access to only that roadway that can more safely and efficiently accommodate traffic.
- e) If the municipality anticipates that a property may be subdivided and that the subdivision may result in an unacceptable number or arrangement of driveways, or both, the municipality shall require the property owner to enter into an access covenant to restrict future access.

2) Corner Clearance

- a) Corner clearance shall meet the following driveway spacing standards that are desirable for arterial and major collector roads:
 - i) Principal arterial: 600 feet
 - ii) Minor arterial: 400 feet
 - iii) Major collector: 200 feet
- b) Access shall be provided to the roadway where corner clearance requirements can be achieved.
- c) If the minimum driveway spacing standards cannot be achieved due to constraints, the following shall apply in all cases:
 - i) There shall be a minimum 10-foot tangent distance between the end of the intersecting roadway radius and the beginning radius of a permitted driveway.
 - ii) The distance from the nearest edge of cartway of an intersecting roadway to the beginning radius of a permitted driveway shall be a minimum of 30 feet.

d) If no other reasonable access to the property is available, and no reasonable alternative is identified, the driveway shall be located the farthest possible distance from the intersecting roadway. In such cases, directional connections (i.e., right in/right out only, right in only or right out only) may be required.

e) The municipality shall require restrictions at the driveway if the municipal engineer determines that the location of the driveway and particular ingress or egress movements will create safety or operational problems.



3) Safe Sight Distance

a) Safe sight distance shall be available for all permitted turning movements at all driveway intersections.

b) PennDOT's Pub. 441 and Pub. 282 for driveways or Pub. 70 for local roads shall be referenced to determine minimum driveway and roadway intersection safe sight distance requirements.

c) All driveways and intersecting roadways shall be designed and located so that the sight distance is optimized to the degree possible without jeopardizing other requirements such as intersection spacing, and at least minimum sight distance requirements are met.

4) Driveway Channelization

a) For high and medium volume driveways, channelization islands and medians shall be used to separate conflicting traffic movements into specified lanes to facilitate orderly movements for vehicles and pedestrians.

b) Where it is found to be necessary to restrict particular turning movements at a driveway, due to the potential disruption to the orderly flow of traffic or a result of sight distance constraints, the municipality may require a raised channelization island.

c) Raised channelization islands shall be designed with criteria consistent with the latest AASHTO publication entitled *A Policy on Geometric Design of Highways and Streets*.

5) Joint and Cross Access

a) The municipality may require a joint driveway in order to achieve the following driveway spacing standards that are desirable for arterial and major collector roads:

- i) Principal arterial: 600 feet
- ii) Minor arterial: 400 feet
- iii) Major collector: 200 feet

b) Adjacent non-residential properties shall provide a joint or cross access driveway to allow circulation between sites wherever feasible along roadways classified as major collectors or arterials in accordance with the functional classification contained in the municipal comprehensive plan. The following shall apply to joint and cross access driveways:

- i) The driveway shall have a design speed of 10 mph and have sufficient width to accommodate two-way traffic including the largest vehicle expected to frequently access the properties.
- ii) A circulation plan that may include coordinated or shared parking shall be required.
- iii) Features shall be included in the design to make it visually obvious that abutting properties shall be tied in to provide cross access.

c) The property owners along a joint or cross access driveway shall:

- i) Record an easement with the deed allowing cross access to and from other properties served by the driveway.
- ii) Record an agreement with the municipality so that future access rights along the driveway shall be granted at the discretion of the municipality and the design shall be approved by the municipal engineer.
- iii) Record a joint agreement with the deed defining the maintenance responsibilities of each of the property owners located along the driveway.

6) Access to Outparcels

a) For commercial and office developments under the same ownership and consolidated for the purposes of development or phased developments comprised of more than one building site, the municipality shall require that the development be served by an internal road that is separated from the main roadway.

b) All access to outparcels shall be internalized using the internal roadway.

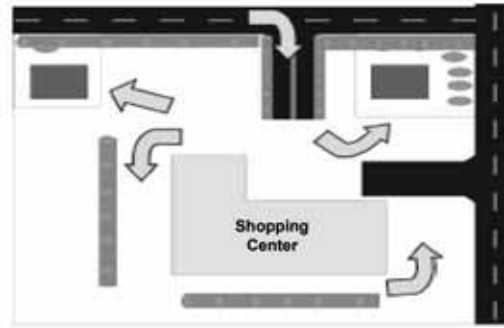
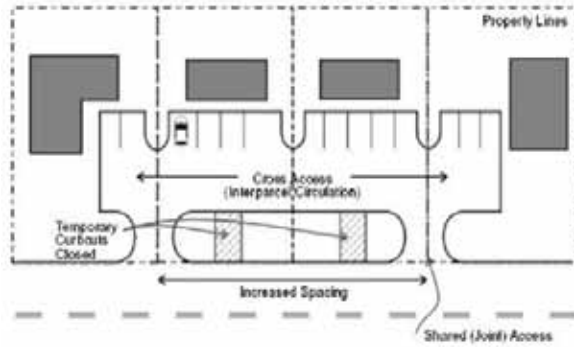
c) The driveways for outparcels shall be designed to allow safe and efficient ingress and egress movements from the internal road.

d) The internal circulation roads shall be designed to avoid excessive queuing across parking aisles.

e) The design of the internal road shall be in accordance with all other sections of this ordinance.

f) All necessary easements and agreements required under Section A.6.c shall be met.

g) A municipality may require an access covenant to restrict an outparcel to internal access only.



B. Driveway Design Elements

1) Driveway Throat Length

- a) For minimum use driveways, the throat length shall be a minimum of 25 feet.
- b) For low volume driveways, the throat length shall be a minimum of 50 feet or as determined by queuing analysis.
- c) For medium volume driveways, the throat length shall be a minimum of 120 feet or as determined by a queuing analysis.
- d) For high volume driveways, the throat length shall be a minimum of 150 feet or as determined by a queuing analysis.

2) Driveway Throat Width

- a) For driveways without curb:
 - i) A minimum use driveway shall have a minimum width of 10 feet.
 - ii) Low and medium volume driveways shall have a minimum width of 10 feet for one-way operation and a minimum width of 20 feet for two-way operation.
 - iii) The design of high volume driveways shall be based on analyses to determine the number of required lanes.
- b) For driveways with curb, two feet should be added to the widths contained in Section a.i and a.ii.
- c) The municipality may require additional driveway width to provide turning lanes for adequate traffic flow and safety.
- d) The municipality may require that the driveway design include a median to control turning movements. Where medians are required or permitted, the minimum width of the median shall be four feet to provide adequate clearance for signs.

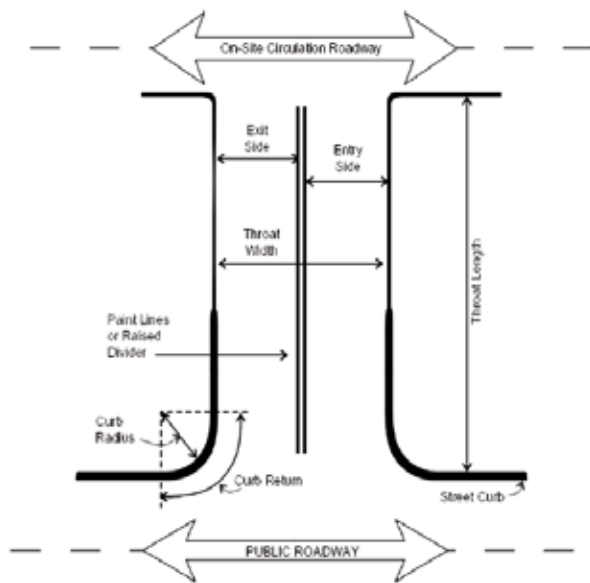
3) Driveway Radius

a) The following criteria shall apply to driveway radii:

- i) For minimum use driveways, the radii shall be a minimum of 15 feet.
- ii) For low volume driveways, the radii shall be a minimum of 15 feet uncurbed and 25 feet curbed.
- iii) For medium volume driveways, the radii shall be a minimum of 15 feet uncurbed and 25 feet curbed.
- iv) For high volume driveways, the design should be reviewed by the municipal engineer on municipal roadways and PennDOT on state maintained roadways.

b) For all driveways, the radii shall be designed to accommodate the largest vehicle expected to frequently use the driveway.

c) Except for joint driveways, no portion of a driveway radius may be located on or along the frontage of an adjacent property.



4) Driveway Profile

a) Driveway grade requirements where curb is not present on the intersecting street:

- i) Shoulder slopes vary from four percent to six percent. When shoulders are present, the existing shoulder slope shall be maintained across the full shoulder width.
- ii) The change in grade between the cross slope of the connecting roadway or shoulder and the driveway shall not exceed eight percent.
- iii) The driveway grade shall not exceed eight percent within 10 feet of the edge of travel lane for minimum use driveways and within 40 feet for low, medium, and high volume driveways.

iv) A 40-foot minimum vertical curve should be used for a high volume driveway.

b) Driveway grade requirements where curbs and sidewalks are present:

i) The difference between the cross slope of the roadway and the grade of the driveway apron may not exceed eight percent.

ii) The driveway grade shall not exceed eight percent within 10 feet of the edge of travel lane for minimum use driveways and within 40 feet for low, medium, and high volume driveways.

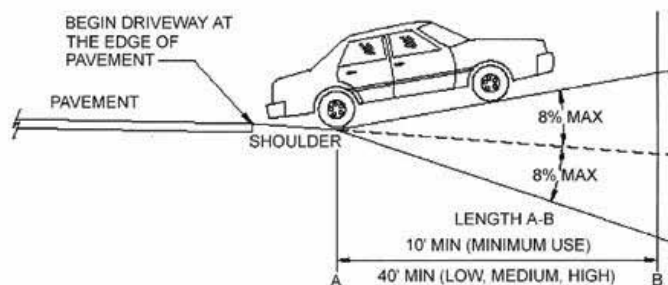
iii) If a planted area exists between the sidewalk and curb, the following shall apply:

(1) The grade of the planted area shall not exceed eight percent.

(2) If the driveway grade would exceed eight percent in the area between the curb and the sidewalk, the outer edge (street side) of the sidewalk may be depressed to enable the driveway grade to stay within eight percent. A maximum sidewalk cross slope of eight percent must be maintained.

(3) If the sidewalk cross slope exceeds two percent, the entire sidewalk may be depressed. The longitudinal grade of the sidewalk may not exceed six percent.

c) Although site conditions may not allow strict adherence to these guidelines in this ordinance, every effort should be made to design and construct the safest and most efficient access onto the municipal or state roadway.



C. TRANSPORTATION IMPACT STUDIES

A transportation impact study is an engineering study that evaluates the effect that traffic generated by a proposed development would have on surrounding roadway operations, and determines the improvements to the existing transportation system necessary to accommodate that traffic. A transportation impact study should be completed when thresholds are met based on the size of the development and its impact on adjacent access points and intersections.

An application for access to a development shall include a traffic impact study if:

- The access is expected to have an average daily traffic volume of 3,000 or more,

- During any one-hour time period, the development is expected to generate either 100 or more new vehicle trips entering the development or 100 or more new vehicle trips exiting the development, or
- In the opinion of the City Planner, the development is expected to have a significant impact on highway safety or traffic flow even though it does not meet 1 or 2 above.

All transportation impact studies are to be prepared in accordance with the latest PennDOT requirements for Transportation Impact Studies.

T&D TRAFFIC PLANNING AND DESIGN, INC.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	VENANGO	0062		1 OF 1
REVISION NUMBER	CITY OF OIL CITY	REVISIONS	DATE	BY

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**PRELIMINARY
PLANS SUBJECT
TO CHANGE**



LEGEND	
- EXISTING FEATURES	- PROPOSED VEGETATION
- LEGAL RIGHT-OF-WAY	- EXISTING ROADWAY
- PAVEMENT MARKINGS	- PROPOSED SIDEWALK
- CONCRETE MOUNTABLE MEDIAN	
- PLCC CURBING	
- EDGE OF ROAD	

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	VENANGO	0062		1 OF 1
REVISION NUMBER	CITY OF OIL CITY	REVISIONS	DATE	BY

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T&D TRAFFIC PLANNING AND DESIGN, INC.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	VENANGO	0062		1 OF 1
REVISION NUMBER	CITY OF OIL CITY	REVISIONS	DATE	BY

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DATE: 04-20-10 PROJECT DESIGNER: MB JOB NO: NP1A-00002
ACCESS MANAGEMENT CONCEPT - WILSON AVE

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Appendix I: Traffic Signal Warrant Analyses

FOUR HOUR VOLUME WARRANT

Traffic Signal Warrant Summary

MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	Petroleum Street	1	35	North-South
Minor Street:	Front Street	1	35	East-West

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

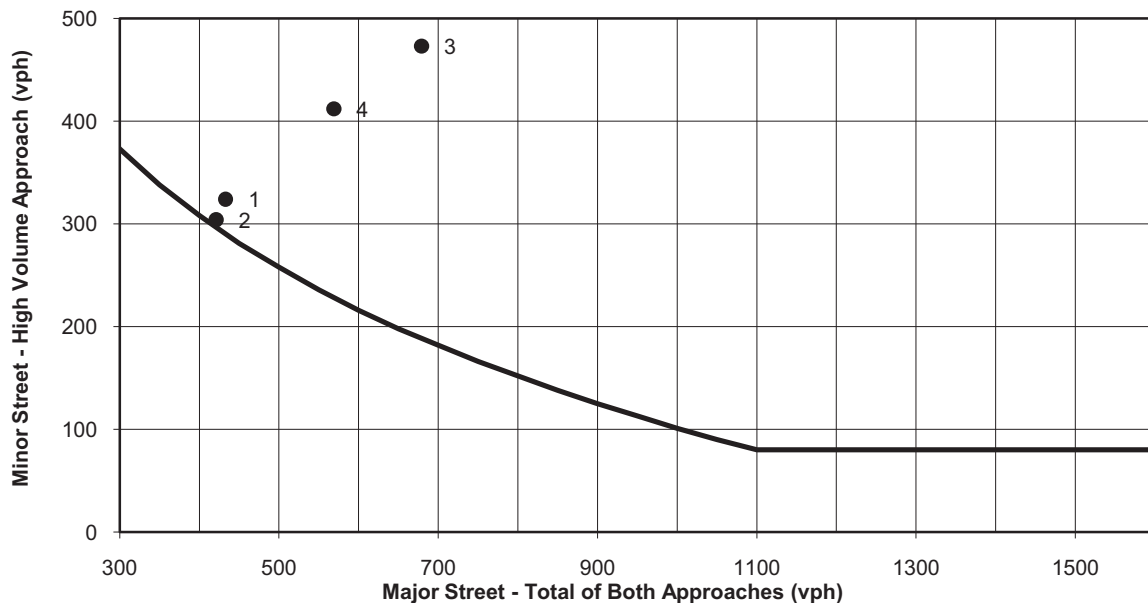
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	32	0	8	98	0	226	0	163	0	0	270	0
8:00-9:00 A.M.	26	0	4	112	0	192	0	145	0	0	276	0
4:00-5:00 P.M.	32	0	6	200	0	273	0	194	0	0	485	0
5:00-6:00 P.M.	30	0	12	184	0	228	0	159	0	0	410	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	433	324	290	yes
2	8:00-9:00 A.M.	421	304	296	yes
3	4:00-5:00 P.M.	679	473	189	yes
4	5:00-6:00 P.M.	569	412	228	yes
5					
6					



Traffic Signal Warrant Summary

MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	State Street	2	25	North-South
Minor Street:	Front Street	1	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; transform: rotate(45deg);"></div>	East-West

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

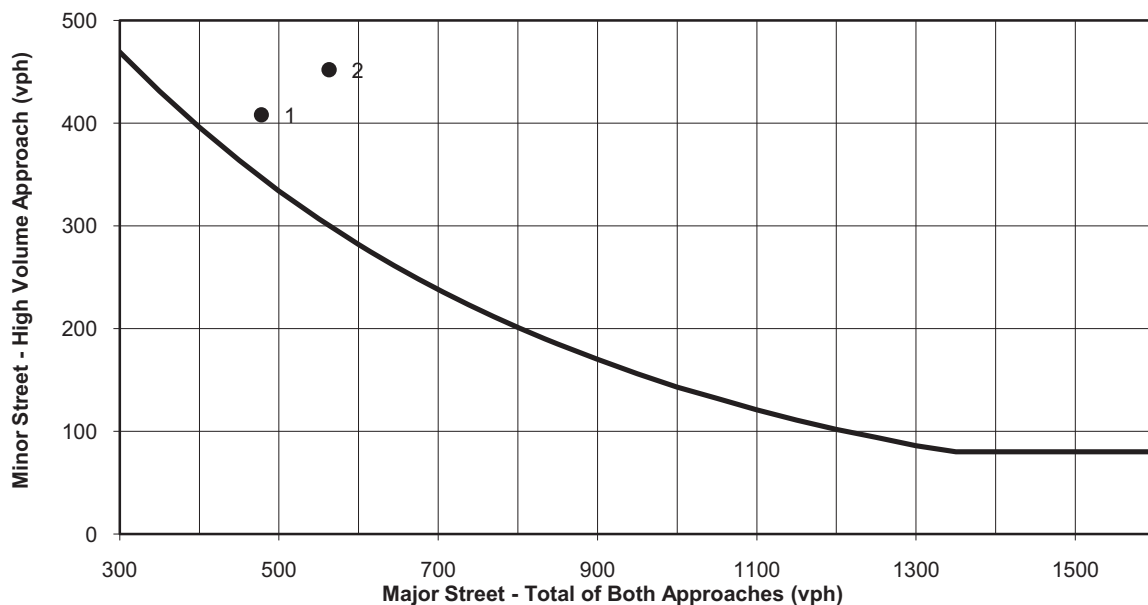
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	0	0	0	5	195	208	0	119	0	0	246	113
8:00-9:00 A.M.	0	0	0	6	200	246	0	133	0	0	298	132
4:00-5:00 P.M.	0	0	0	18	265	422	0	132	0	0	409	211
5:00-6:00 P.M.	0	0	0	21	251	395	0	140	0	0	364	211

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	478	408	347	yes
2	8:00-9:00 A.M.	563	452	300	yes
3	4:00-5:00 P.M.	752	705	218	yes
4	5:00-6:00 P.M.	715	667	232	yes
5					
6					



Traffic Signal Warrant Summary

MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	Front Street	2	25	East-West
Minor Street:	Wilson Street	2	X	North-South

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

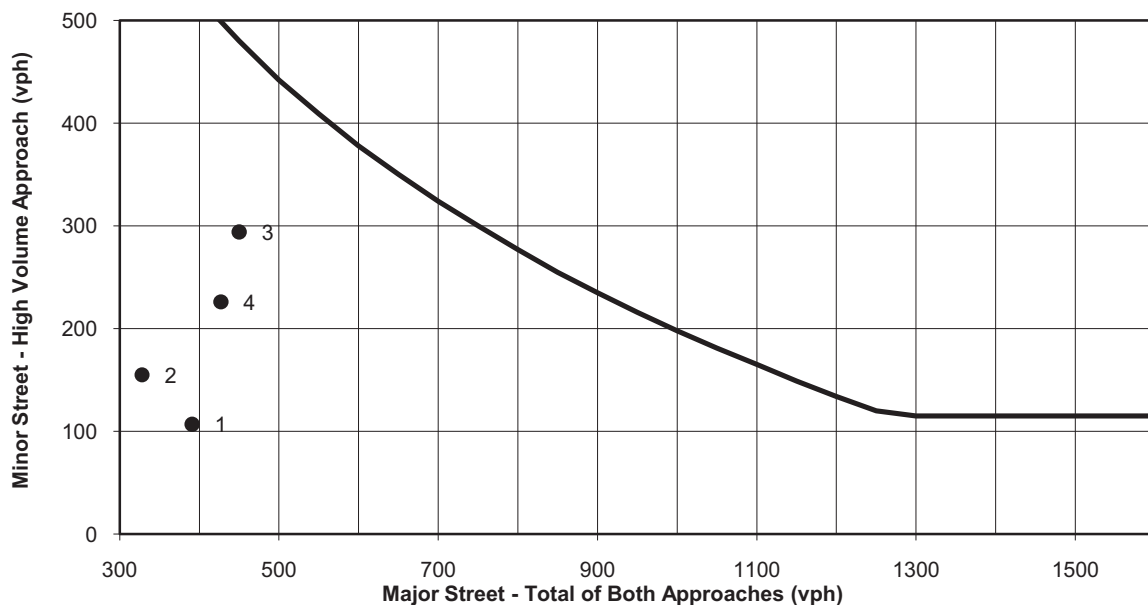
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	0	0	0	0	391	0	107	0	0	0	0	0
8:00-9:00 A.M.	0	0	0	0	328	0	155	0	0	0	0	0
4:00-5:00 P.M.	0	0	0	0	450	0	294	0	0	0	0	0
5:00-6:00 P.M.	0	0	0	0	427	0	226	0	0	0	0	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	391	107	529	no
2	8:00-9:00 A.M.	328	155	582	no
3	4:00-5:00 P.M.	450	294	490	no
4	5:00-6:00 P.M.	427	226	507	no
5					
6					



Traffic Signal Warrant Summary MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	Petroleum Street	1	25	North-South
Minor Street:	First Street	1	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); border-left: 1px solid black; border-right: 1px solid black; height: 0;"></div> </div>	East-West

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

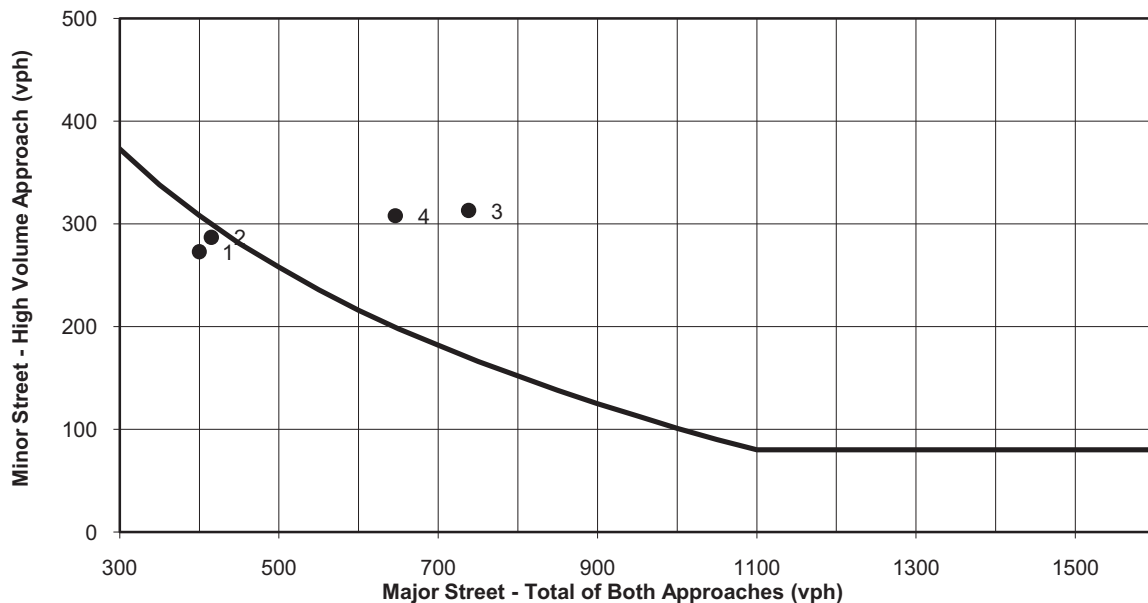
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	143	126	4	0	0	0	6	16	3	142	31	202
8:00-9:00 A.M.	120	163	4	0	0	0	4	24	1	153	28	205
4:00-5:00 P.M.	164	148	1	0	0	0	11	31	7	300	50	339
5:00-6:00 P.M.	140	165	3	0	0	0	4	27	4	280	40	291

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	400	273	308	no
2	8:00-9:00 A.M.	415	287	300	no
3	4:00-5:00 P.M.	738	313	170	yes
4	5:00-6:00 P.M.	646	308	200	yes
5					
6					



Traffic Signal Warrant Summary

MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	First Street	1	25	East-West
Minor Street:	Central Street	1	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; transform: rotate(45deg);"></div>	North-South

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

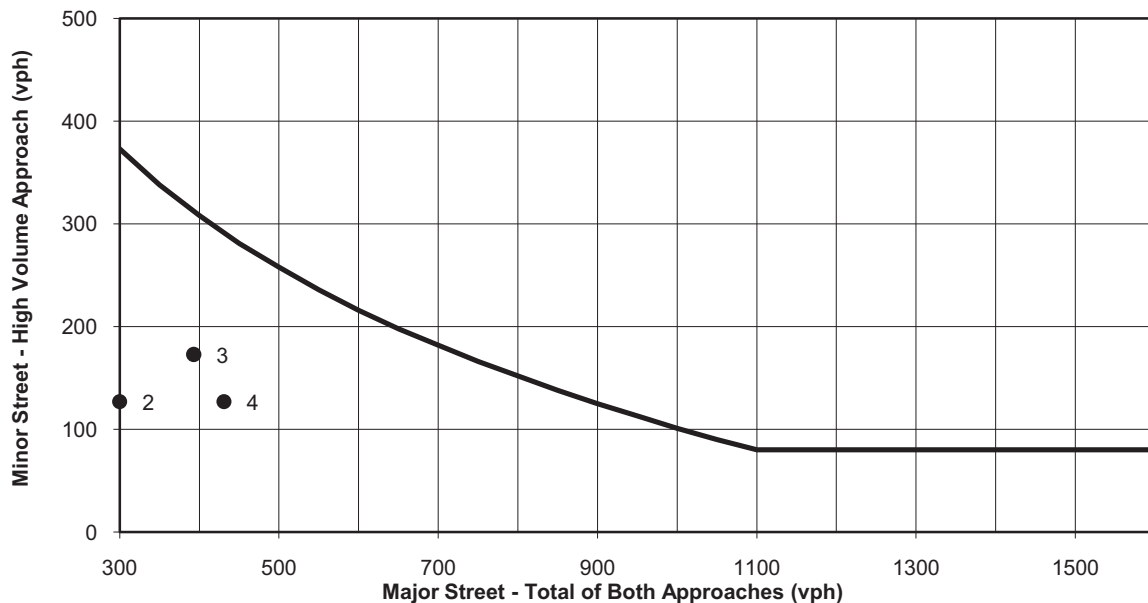
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	10	223	8	0	0	0	0	62	73	9	37	0
8:00-9:00 A.M.	13	267	20	0	0	0	0	49	78	25	41	0
4:00-5:00 P.M.	26	322	45	0	0	0	0	55	95	55	118	0
5:00-6:00 P.M.	23	353	55	0	0	0	0	46	81	38	74	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	241	135	422	no
2	8:00-9:00 A.M.	300	127	373	no
3	4:00-5:00 P.M.	393	173	312	no
4	5:00-6:00 P.M.	431	127	291	no
5					
6					



Traffic Signal Warrant Summary MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	First Street	1	25	East-West
Minor Street:	State Street	1	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; transform: rotate(45deg); transform-origin: center;"></div>	North-South

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

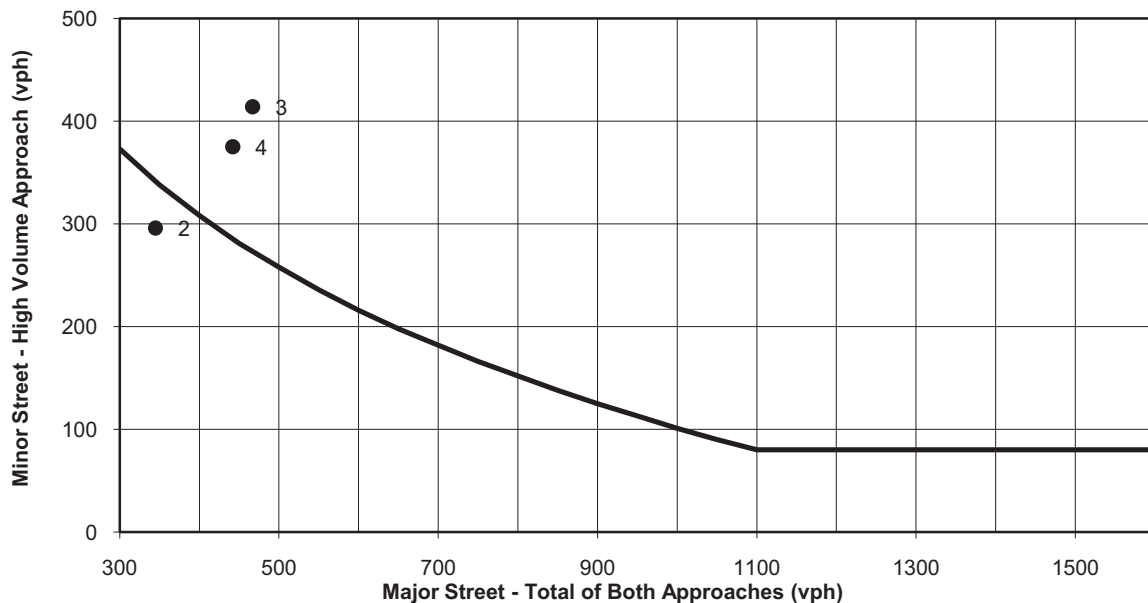
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	112	171	2	0	0	0	0	0	0	245	12	0
8:00-9:00 A.M.	138	200	7	0	0	0	0	0	0	284	12	0
4:00-5:00 P.M.	140	306	21	0	0	0	0	0	0	369	45	0
5:00-6:00 P.M.	141	276	25	0	0	0	0	0	0	345	30	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	285	257	384	no
2	8:00-9:00 A.M.	345	296	341	no
3	4:00-5:00 P.M.	467	414	273	yes
4	5:00-6:00 P.M.	442	375	285	yes
5					
6					



Traffic Signal Warrant Summary MUTCD Warrant 3 - Four Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002
Condition:	2009		

	Street Name	Lanes	Speed	Direction
Major Street:	First Street	2	25	East-West
Minor Street:	Wilson Street	2	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; transform: rotate(45deg); transform-origin: center;"></div>	North-South

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

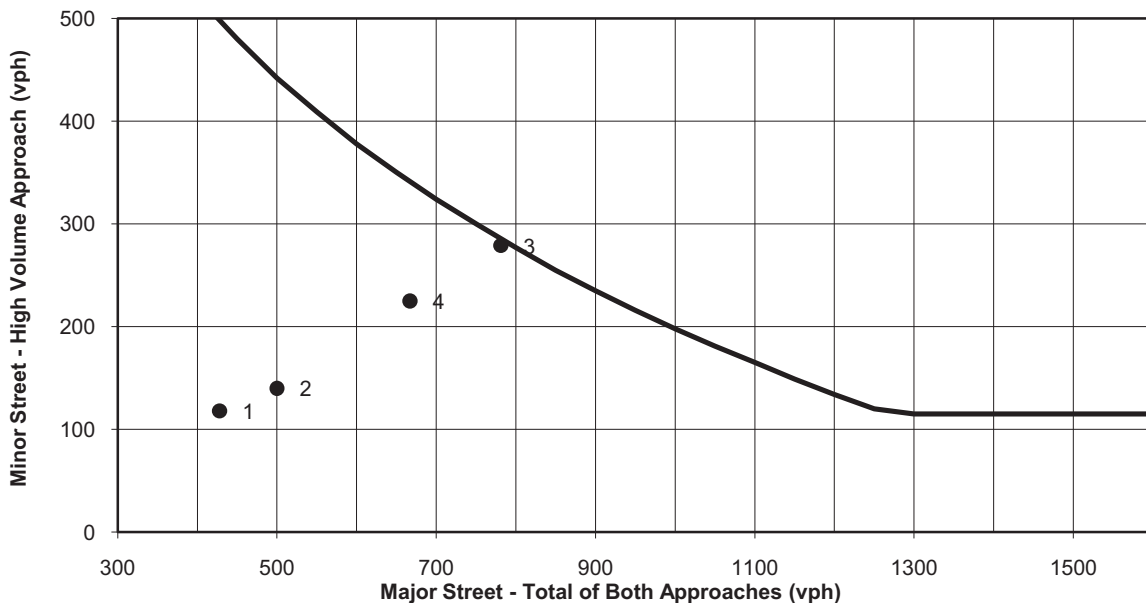
Normal values apply

MUTCD Warrant 3 - Four Hour Volume

Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00 A.M.	8	302	118	0	0	0	0	115	3	0	0	0
8:00-9:00 A.M.	9	344	147	0	0	0	0	137	3	0	0	0
4:00-5:00 P.M.	28	488	265	0	0	0	0	277	2	0	0	0
5:00-6:00 P.M.	13	441	213	0	0	0	0	223	2	0	0	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	7:00-8:00 A.M.	428	118	497	no
2	8:00-9:00 A.M.	500	140	455	no
3	4:00-5:00 P.M.	781	279	288	no
4	5:00-6:00 P.M.	667	225	349	no
5					
6					



PEAK HOUR VOLUME WARRANT

Traffic Signal Warrant Summary

2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	Street Name	Lanes	Speed	Direction
Major Street:	Petroleum Street	1	35	North-South
Minor Street:	Front Street	1	35	East-West

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

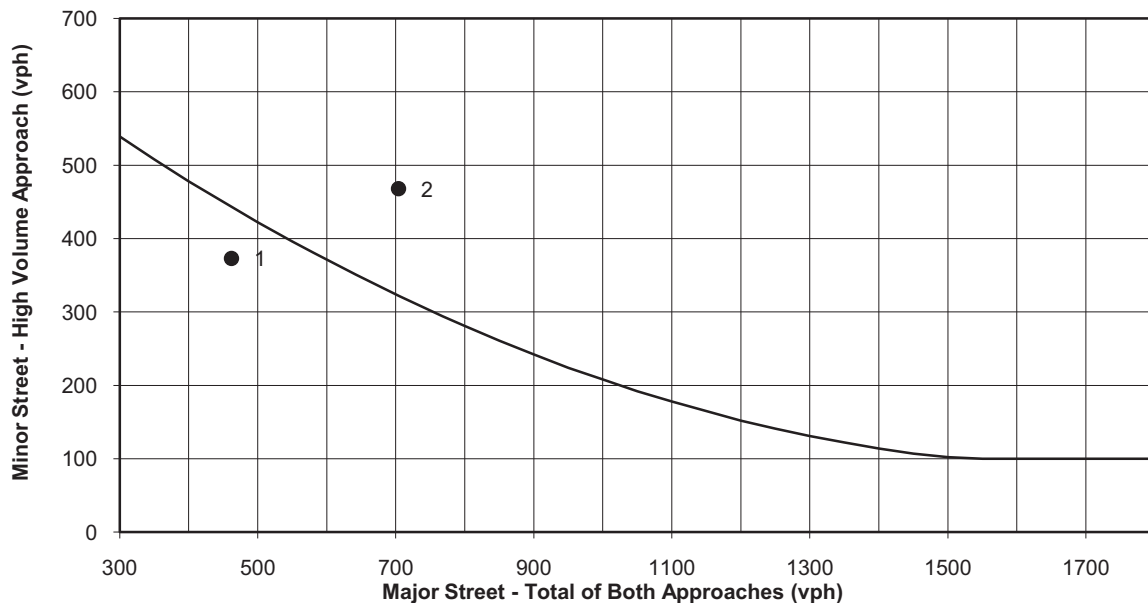
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	33	0	11	145	0	228	0	186	0	0	276	0
2009 PM	32	0	7	196	0	272	0	202	0	0	502	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	462	373	443	no
2	2009 PM	704	468	322	yes
3					
4					
5					
6					



Traffic Signal Warrant Summary 2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	<u>Street Name</u>	<u>Lanes</u>	<u>Speed</u>	<u>Direction</u>
Major Street:	Front Street	1	25	East-West
Minor Street:	Central Avenue	1	25	North-South

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

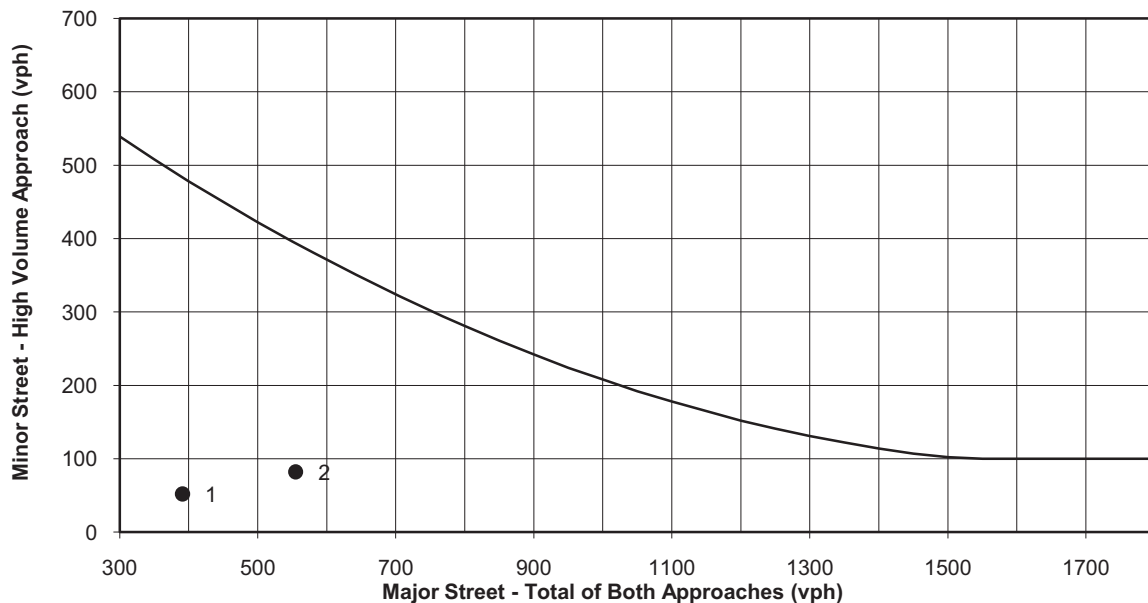
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	0	0	0	65	326	0	52	0	0	0	0	0
2009 PM	0	0	0	167	388	0	82	0	0	0	0	0

Results


	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	391	52	484	no
2	2009 PM	555	82	394	no
3					
4					
5					
6					



Traffic Signal Warrant Summary

2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	<u>Street Name</u>	<u>Lanes</u>	<u>Speed</u>	<u>Direction</u>
Major Street:	State Street	2	25	North-South
Minor Street:	Front Street	1		East-West

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

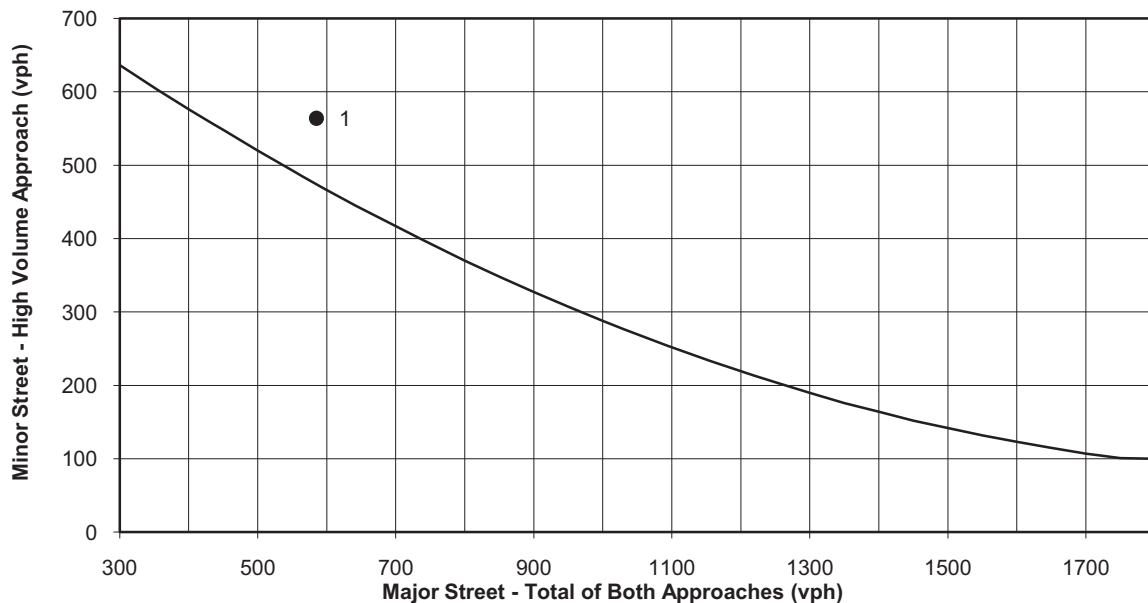
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	0	0	0	6	235	323	0	133	0	0	289	163
2009 PM	0	0	0	19	309	430	0	137	0	0	415	239

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	585	564	474	yes
2	2009 PM	791	758	374	yes
3					
4					
5					
6					



Traffic Signal Warrant Summary 2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	<u>Street Name</u>	<u>Lanes</u>	<u>Speed</u>	<u>Direction</u>
Major Street:	Front Street	2	25	East-West
Minor Street:	Wilson Street	2	25	North-South

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

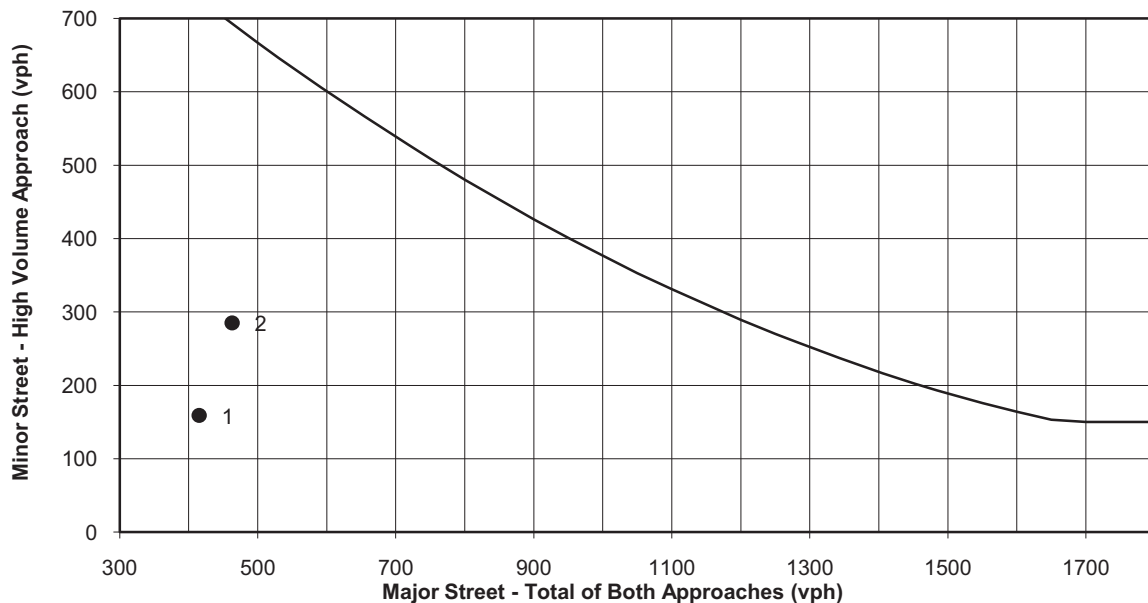
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	0	0	0	0	415	0	159	0	0	0	0	0
2009 PM	0	0	0	0	463	0	285	0	0	0	0	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	415	159	727	no
2	2009 PM	463	285	693	no
3					
4					
5					
6					



Traffic Signal Warrant Summary 2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	Street Name	Lanes	Speed	Direction
Major Street:	Petroleum Street	1	25	North-South
Minor Street:	First Street	1	25	East-West

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

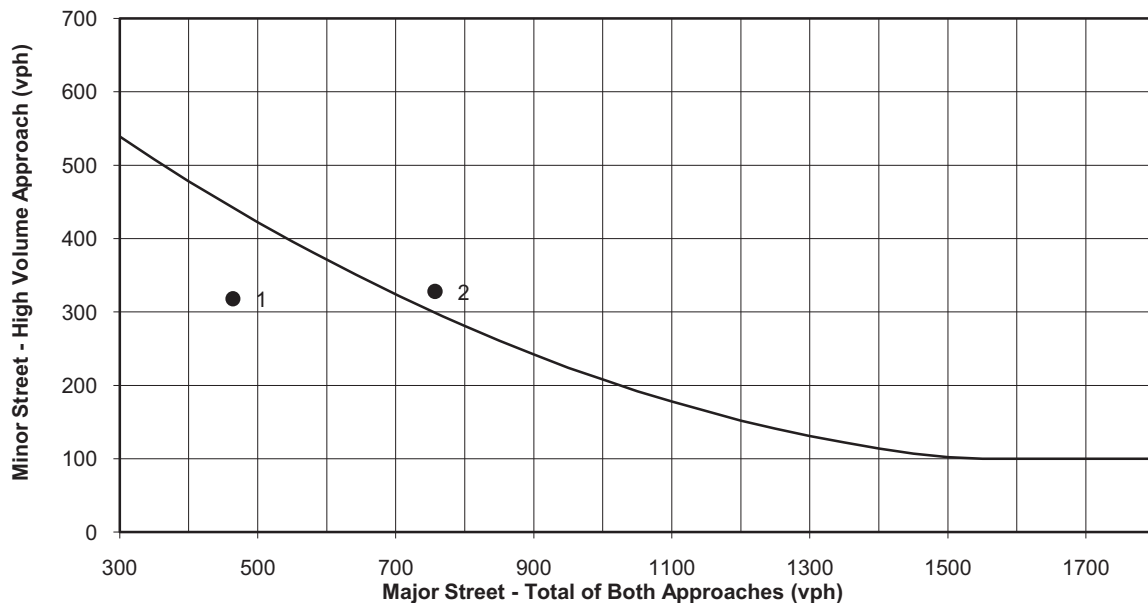
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	159	153	6	0	0	0	7	24	1	141	34	257
2009 PM	174	151	3	0	0	0	6	34	6	318	52	341


Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	464	318	442	no
2	2009 PM	757	328	299	yes
3					
4					
5					
6					



Traffic Signal Warrant Summary 2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	<u>Street Name</u>	<u>Lanes</u>	<u>Speed</u>	<u>Direction</u>
Major Street:	First Street	1	25	East-West
Minor Street:	Central Street	1		North-South

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

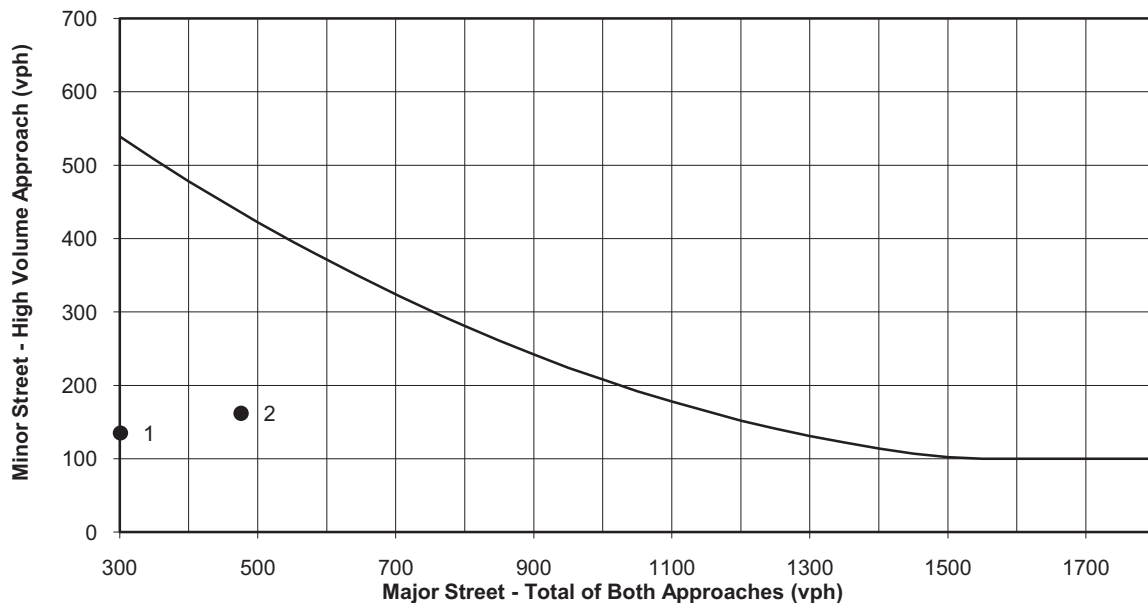
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	13	275	13	0	0	0	0	48	87	15	49	0
2009 PM	26	395	55	0	0	0	0	48	83	80	82	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	301	135	538	no
2	2009 PM	476	162	435	no
3					
4					
5					
6					



Traffic Signal Warrant Summary

2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	Street Name	Lanes	Speed	Direction
Major Street:	First Street	1	25	East-West
Minor Street:	State Street	1	<div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">X</div>	North-South

Volume Level Criteria

- | | |
|--|----|
| 1. Is the critical speed of major street > 40 mph? | No |
| 2. Is the intersection in a built-up area of isolated community of <10,000 population? | No |

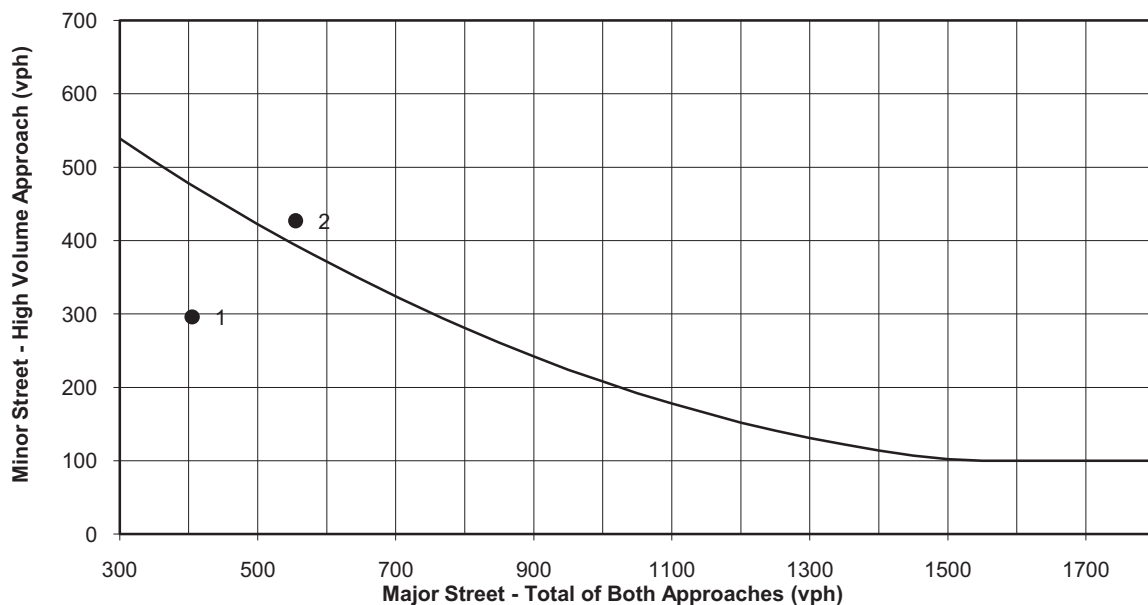
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	138	260	7	0	0	0	0	0	0	284	12	0
2009 PM	142	390	23	0	0	0	0	0	0	383	44	0

Results

Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1 2009 AM	405	296	476	no
2 2009 PM	555	427	394	yes
3				
4				
5				
6				



Traffic Signal Warrant Summary 2003 MUTCD Warrant 3B - Peak Hour Volume

Municipality:	Oil City	Analyst:	M. Mudry
County:	Venango	TPD Project #:	NPPD.A.00002

	<u>Street Name</u>	<u>Lanes</u>	<u>Speed</u>	<u>Direction</u>
Major Street:	First Street	2	25	East-West
Minor Street:	Wilson Street	2	25	North-South

Volume Level Criteria

1. Is the critical speed of major street > 40 mph?	No
2. Is the intersection in a built-up area of isolated community of <10,000 population?	No

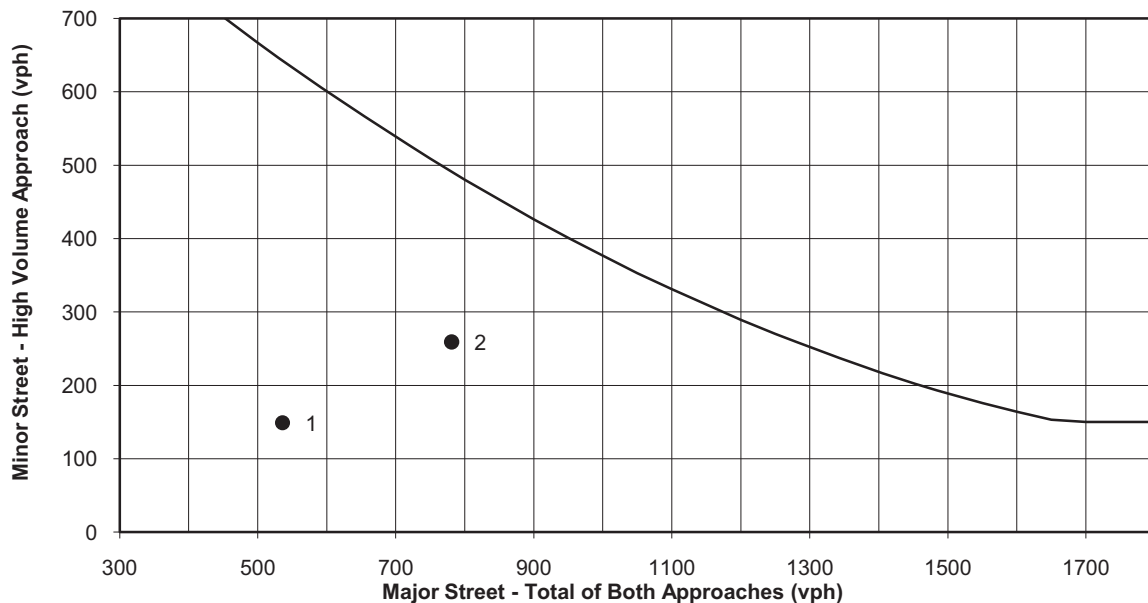
Normal values apply

2003 MUTCD Warrant 3B - Peak Hour Volume

Condition	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2009 AM	12	374	150	0	0	0	0	147	2	0	0	0
2009 PM	28	488	265	0	0	0	0	257	2	0	0	0

Results

	Condition	Major Street Volume	Minor Street Volume	Minor Street Warrant	Meets Warrant?
1	2009 AM	536	149	643	no
2	2009 PM	781	259	491	no
3					
4					
5					
6					



An aerial photograph of a suburban area. A river flows through the center-right of the image. To the left of the river is a road, likely Route 62, which runs diagonally. The surrounding area is filled with residential houses and some commercial buildings. The overall tone of the image is blue and slightly desaturated.

Route 62 Smart Transportation Study

October 2010

imagination.

innovation.

involvement.

impact.