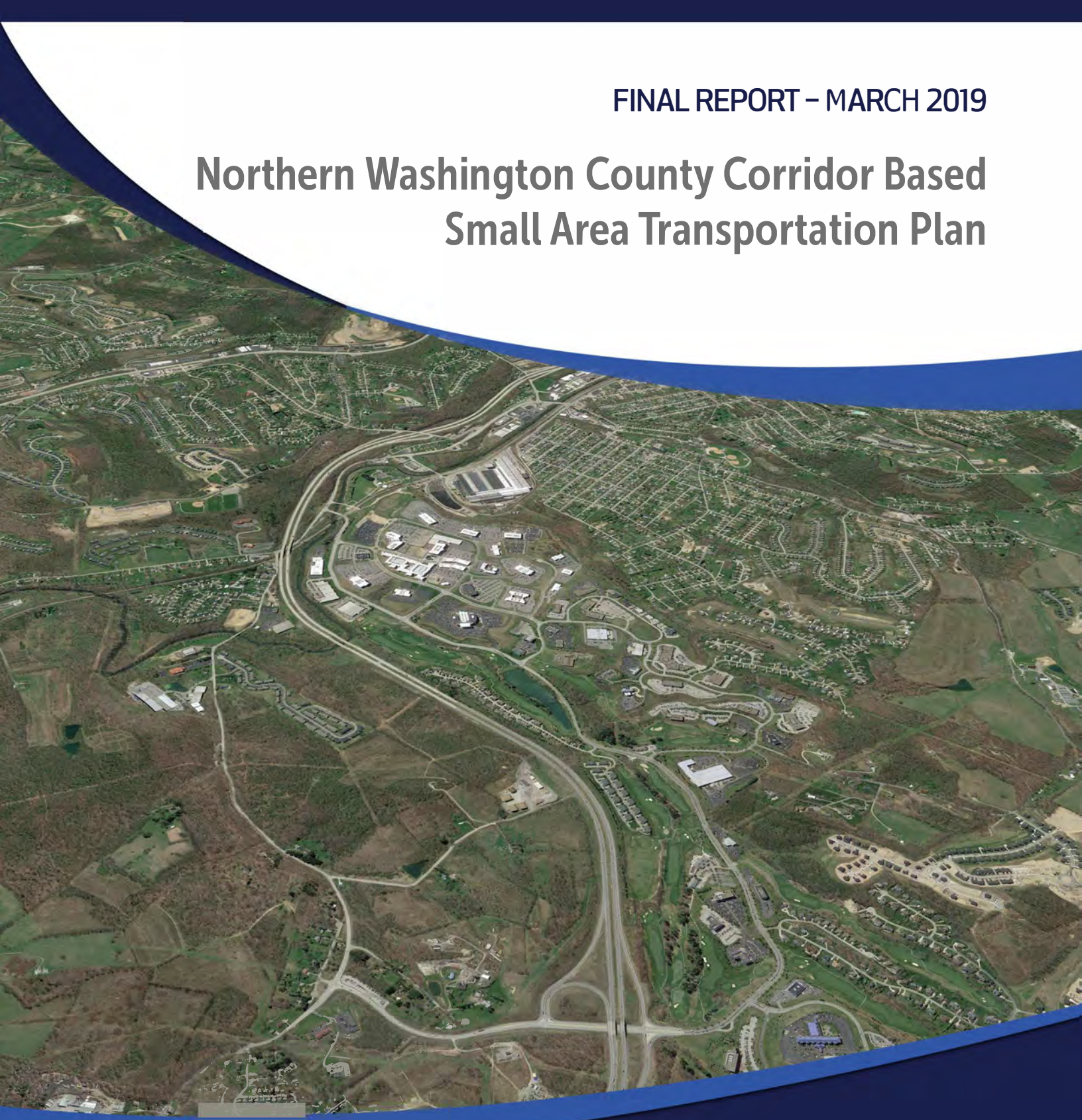


FINAL REPORT – MARCH 2019

Northern Washington County Corridor Based Small Area Transportation Plan



Prepared for:
Southwestern Pennsylvania Commission



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1 PROJECT OVERVIEW

1.1 Background & Purpose

Washington County, part of the Southwestern Pennsylvania region, is located southwest of Allegheny County and the City of Pittsburgh, occupying 860 square miles. The north central area of Washington County has experienced some of the fastest traffic growth in the region, creating congestion and mobility issues along key corridors in recent years. These corridors include I-79, US-19, and SR-1009 (Washington Pike/ Morganza Road). Currently, traffic backs up onto I-79 at the Canonsburg and Southpointe exits; many intersections along US 19 and SR 1009 are also experiencing congestion during peak hours. In recent years, the growth of large business park developments, such as Southpointe I and II, along with substantial infill development of new single family residential, commercial, and industrial developments, are placing stress upon the existing transportation system. In addition, the anticipated completion of the Pennsylvania Turnpike Commission's Southern Beltway project to I-79 and Morganza Road could bring even more traffic to the already congested arterials and connector roadways in the area. Based on forecasted growth, traffic in the study area is projected to increase 30% over the next 20 years. This trend is expected to continue as large parcels of infill development continue to be developed in the I-79/US 19 Corridor Targeted Area of Investment (Wash. Co. Comprehensive Plan 2005).

The purpose of this study was to evaluate the study corridors and intersections within the study area to identify short, medium, and long-term multimodal improvements that satisfy the goals and objectives of the Study.

Building on previous planning work done in the area, Southwestern Pennsylvania Commission (SPC) and its technical consultant team evaluated selected corridors and intersections to identify near-, short-, medium-, and long-term improvements to alleviate congestion in Northern Washington County. The team included Michael Baker International, Lochner Engineering, Moore Design Associates, along with a steering committee comprised of local municipalities, Washington County, and PennDOT.

1.2 Study Area

This corridor-based, small area transportation plan services the area of north central Washington County, in the Townships of Cecil, Chartiers, Mount Pleasant, North Strabane and Peters as well as Canonsburg and Houston Boroughs. The study analyzes traffic flow characteristics, operations, safety, mobility and accessibility, as well as existing and future deficiencies within the study area. This area is identified in the Washington County Comprehensive plan as the I- 79/US 19 Corridor Targeted Area for Investment transitioning into the Rural Recourse Area.

1.3 Goals and Objectives

The Northern Washington County Transportation Study examines existing and future transportation conditions to provide short-term, medium-term, and long-term strategies for roadway and multimodal improvements along key corridors in the study area. The study highlights five key goals:

1. To analyze corridors and key intersections based upon current traffic flow characteristics, operations, safety, accessibility and mobility, as well as current development patterns.
2. To forecast and analyze future traffic, accessibility, and mobility conditions in the study area based on the addition of the Southern Beltway and future development patterns.
3. To provide an opinion of cost for the recommended improvements.
4. To recommend a set of short, medium, and long-term multimodal projects and strategies for the study area to address existing and future deficiencies.
5. To provide a menu of traditional and non-traditional funding mechanisms to assist municipalities in implementing the recommended improvements.

Beyond the purpose, SPC and the Steering Committee identified six overall objectives for this project based on stakeholder input:

1. **Improve Safety:** Safety improvements included adjusting intersection geometry, improving sightlines and improving vehicular and pedestrian safety at signalized and unsignalized intersections.
2. **Reduce Congestion:** Congestion mitigation included access management strategies, such as restricting turn lanes and adding channelization, as well as lane additions or extensions, and frontage or connector roads.
3. **Improve Connectivity:** Mobility and accessibility improvements included coordination with planned transit improvements, as well as identifying new pedestrian connections.
4. **Mitigate Deficiencies:** When applicable, the study examined problem intersections and system-wide deficiencies.
5. **Integrate Signal Improvements:** Operations improvements examined include installing adaptive traffic signals, transit signal priority, and signal re-timings and optimization.
6. **Identify Funding Options:** Planning level cost estimates were prepared for the proposed solutions and ranked. A summary of funding options applicable to the proposed improvements were also identified.

1.4 Study Process and Methodology

1. **Analyze Existing and Future Conditions:** Operational analysis was conducted to evaluate the existing and future traffic conditions. SPC's travel demand model was used to develop the future conditions traffic volumes. Operational deficiencies were identified based on traffic analysis.
2. **Identify Safety Concerns:** During the public outreach phase, stakeholders and members of the public reviewed proposed study locations and identified vehicular and pedestrian safety concerns along key corridors and intersections. High crash locations were also evaluated.
3. **Evaluate Mobility and Accessibility:** Improvements were identified related to transit service, including route reallocation, building a new Canonsburg Park-n-Ride/Transportation Center, the development of a Washington-Canonsburg service spine, and a micro-transit pilot program.
4. **Recommend Short-term and Long-term Improvement Projects:** Improvements were identified for ten (10) Concept Location corridors based on the results of the traffic and safety analysis. The recommended improvements were categorized as near, short, medium, and long-term improvements based on their cost and implementation difficulty.
5. **Identify Potential Funding Sources and Strategies:** SPC conducted a review of potential federal, state, regional, and local funding sources tailored for each type of improvement.

2 STAKEHOLDER AND PUBLIC INPUT

SPC, along with its consultant team, conducted a series of engagements with stakeholders and members of the public. A Steering Committee was formed to review the scope of the project and guide initial considerations on transportation and land use. Summaries of the meetings are outlined below:

2.1 Steering Committee Meetings

- **Meeting 1** (January 17, 2018) was used to kick off the project and define the project’s goals, objectives, and expectations. In this meeting, the consultant team reviewed the scope of work, gathered input from members regarding transportation and land use considerations, and established lines of communication. This first meeting also served to gather initial public input for the plan, identify preliminary study locations, and clarify expectations among the working group.
- **Meeting 2** (August 1, 2018) was used to review results of the existing and future conditions traffic analysis, safety concerns and operational needs, as well as discuss and agree upon the ten locations selected to receive preliminary conceptual engineering.

2.2 Public Meetings

Working with SPC, the consultant team led a public participation process that focused on corridors and key intersections servicing the study area. Two public meetings, conducted as open houses, were held in the Spring and Fall, respectively.

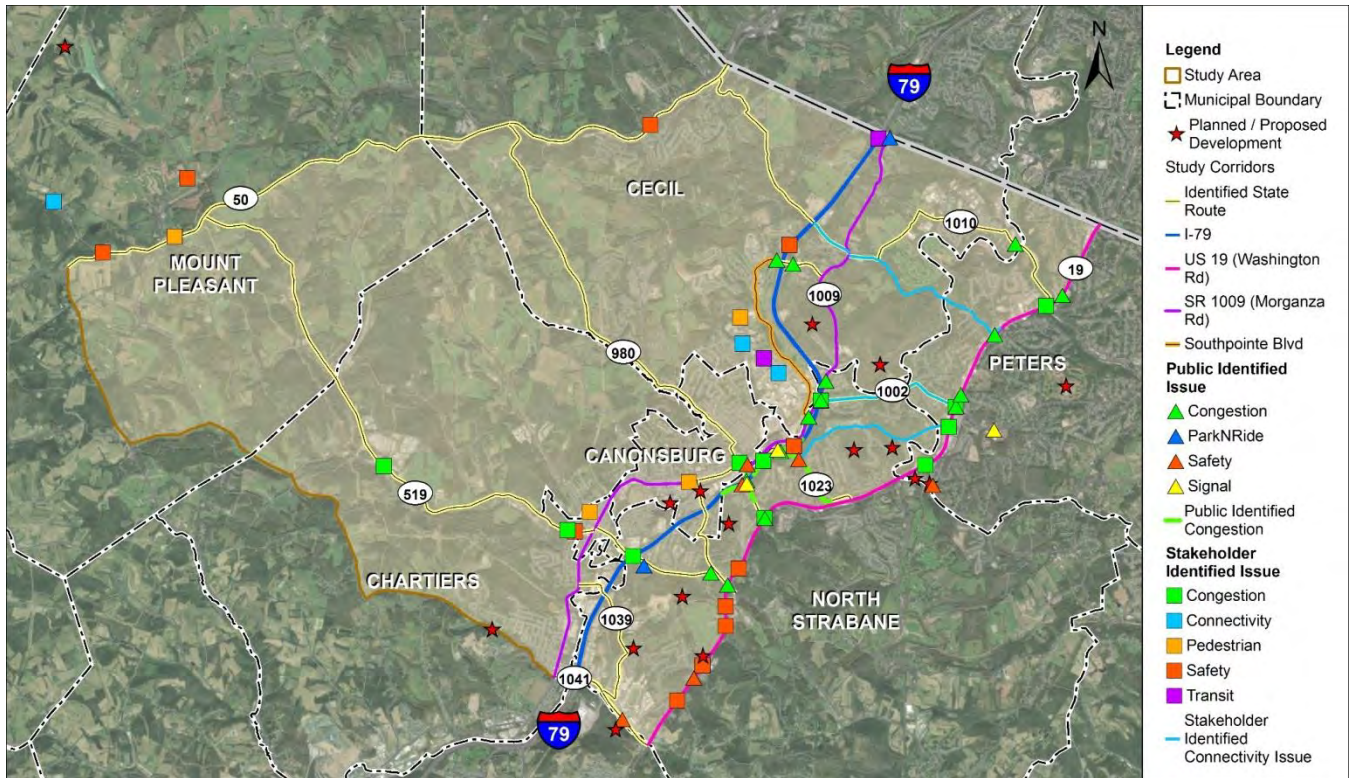
- **Meeting 1** (March 27, 2018). The first public meeting focused on educating community members on the scope of the project and gathering initial feedback on the goals and potential project locations.
- **Meeting 2** (November 8, 2018) received inputs based on proposed improvements after they had been developed. Participants reviewed the ten concept locations and the recommended improvements associated with each and their associated costs. This meeting also provided an opportunity to review the recommendations of the study and those of the recently completed Washington County Transit Development Plan. The recommendations from both of these planning efforts will be amended into the Washington County Comprehensive Plan.

2.3 Summary of Findings

At the first Steering Committee Meeting, working group members identified the six project goals, outlined in Section 1.3 Goals and Objectives. They also previewed the ten concept locations and provided input on safety, operations, mobility, accessibility, and efficiency concerns.

Steering Committee members and public meeting attendees were encouraged to identify transportation issues through discussion with the project team at each of the meeting exhibits and by placing colored dots and Post-It® notes on the maps. Green dots were used to identify bottleneck/congested areas, red dots were used to identify safety concerns, blue dots were used to identify connectivity issues, and orange dots for pedestrian and/or bicycle issues. **Figure 2-1** below illustrates issue areas along the corridor emerging from stakeholder feedback and public comment. Detailed recap of meeting proceedings can be found in the Meeting Summaries, **Appendix C**.

Figure 2-1: Public and Stakeholder Comments (Map)



3 EXISTING AND FUTURE CONDITIONS

3.1 Data Collection

The Northern Washington County Data Compilation report, finalized in June 2016, was used as a basis for this study. Additional data collection was required to facilitate the development of the existing and future conditions and support the safety, operational and mobility needs identification.

An additional 24-hour traffic count was conducted at Southpointe Boulevard between Corporate Drive and Town Center Way.

Turning movement counts were collected at the following locations between 7-9 am and 4-6 pm:

1. I-79 NB at Southpointe Boulevard (ID 1032-01)
2. I-79 SB at Southpointe Boulevard (ID 1032-02)
3. Southpointe Boulevard at Corporate Drive (ID 1032-03)
4. Southpointe Boulevard at Technology Drive N (ID 1032-04)
5. Southpointe Boulevard at Technology Drive S (ID 1032-05)
6. Southpointe Boulevard at Consol Energy Drive (ID 1032-06)
7. Southpointe Boulevard at Town Center Way (ID 1032-07)
8. Washington Road (US 19) at Valley Brook Road (SR 1081) (ID 0019-03)
9. Washington Road (US 19) at Donaldson Crossroads & Dam Road & Donaldson Crossroad Shopping Center (ID 0019-08)
10. Washington Road (US 19) at Galley Road (SR 1023) & McClelland Road (SR 1023) (ID 0019-12)
11. Adams Avenue (Sr 0980) at Euclid Avenue/Morganza Road (ID 0980-02)
12. Morganza Road (SR 1009) at Cavasina Drive & Weavertown Road (SR 1025) (ID 1009-12)
13. Pike Street (SR 1009) at North Central Avenue (Sr 0980) (ID 1009-14)
14. Burgettstown Road (SR 18) at Main Street (SR 50) (ID 0018-01)
15. Henderson Road (SR 18) at Avella Road/Main Street (SR 50) (ID 0018-0580)

3.2 Operational Analysis

3.2.1 Existing Conditions

Utilizing the collected traffic data, traffic volumes were compiled and grown to a common year of 2018. PennDOT's "2016 Pennsylvania Traffic Data" publication was used to grow the traffic volumes to 2018. Volume diagrams were developed for the 40 study intersections for 2018 for the AM and PM peak hour. The peak hour volumes and ADTs for the study area are shown in **Appendix D**.

3.2.2 Existing Conditions Traffic Capacity Analysis

Trafficware's Synchro/SimTraffic version 9 was utilized to analyze each of the 40 signalized and unsignalized intersections. The Synchro/SimTraffic analysis utilized previously developed models in the corridor where available. New models were developed where there were no previous models available.

The results of the analysis measured the effectiveness of the signalized intersections and unsignalized intersections. Intersection delay is presented in terms of average delay per vehicle in seconds. A corresponding

level of service (LOS) was assigned to the results. Level of service ranges from A to F, with A being best and F being worst. **Figure 3-1 and Table 3-1** summarize the LOS for each location during the AM and PM peak periods.

Figure 3-1: 2018 Existing Level of Service (Map)

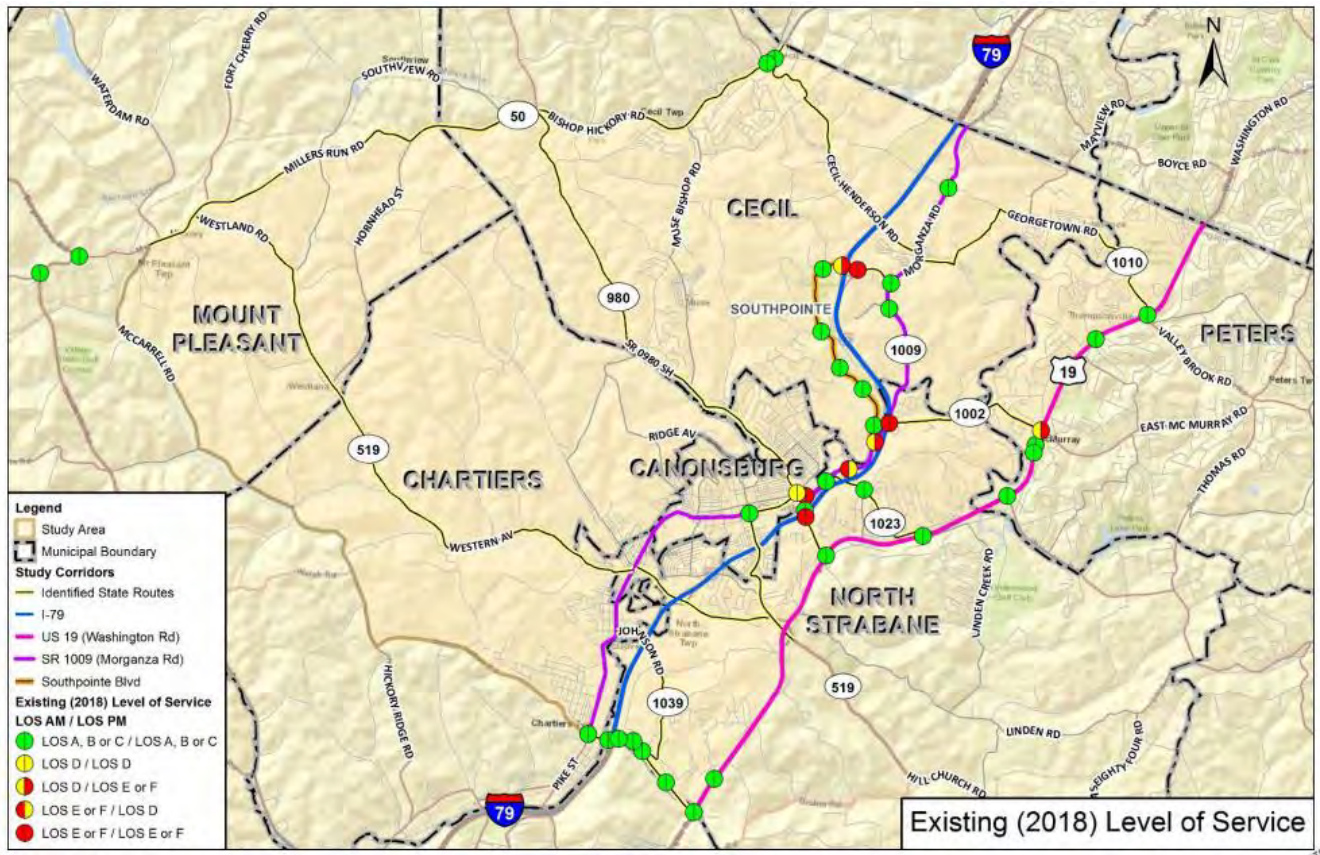


Table 3-1: 2018 Existing Level of Service – No Mitigation

ID	North/South	East/West	Control Type	Overall AM (PM)
0980-02	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/ Euclid Ave (SR 0980)	Signal	D (D)
1009-02	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	Stop	A (A)
1009-05	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/ Old Morganza Rd	Signal	B (C)
1009-06	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	Stop	B (A)
1009-08	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	Stop	F-64.3 (F-86.3)
1009-09	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	D (E-76.9)
1009-10	Curry Ave	Morganza Rd (SR 1009)	Stop	E-35.1 (D)
1009-11	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal	B (C)
1009-12	Weavertown Rd (SR 1025)/ Cavasina Dr	Morganza Rd (SR 1009)	Signal	F-285.4 (F-444.0)

ID	North/South	East/West	Control Type	Overall AM (PM)
1009-14	Pike St (SR 1009/SR 0980)	North Central Ave (SR 0980)/ (SR 1027)	Signal	B (B)
1023-01	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	A (C)
1025-01	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	*A (A)
1025-02	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	Stop	F-186.6 (F-75.6)
1032-01	I-79 NB Ramps	Southpointe Blvd (SR 1032)	Stop	F-258.8 (F-542.6)
1032-02	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	D (F-139.6)
1032-03	Southpointe Blvd	Corporate Drive	Signal	B (B)
1032-04	Southpointe Blvd	Technology Dr (North)	Signal	A (A)
1032-05	Southpointe Blvd	Technology Dr (South)	Signal	A (B)
1032-06	Southpointe Blvd	Consol Energy Dr	Signal	A (B)
1032-07	Southpointe Blvd	Town Center Way	Signal	A (C)
0019-03	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	B (C)
0019-05	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley Rd	Signal	B (B)
0019-07	Washington Rd (US 0019)	McMurry Rd (SR 1002)	Signal	D (E-71.3)
0019-08	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	B (C)
0019-09	Washington Rd (US 0019)	McDowell Ln	Signal	A (C)
0019-11	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C (C)
0019-12	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	C (C)
0019-14	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	C (C)
0050-01	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	Stop	B (C)
0050-02	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	Stop	C (C)
0018-01	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	Stop	B (C)
0018-02	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	Stop	A (A)
0019-15	Washington Rd (US 0019)	Meadowbrook Dr	Signal	A (A)
0019-16	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	B (B)
1009-19	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (C)
1041-01	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	C (C)
1041-02	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	B (B)
1041-03	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (B)
1041-04	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	C (C)
1041-05	Racetrack Rd (SR 1041)	Meadows Rd	Signal	B (B)

* Approach is uncontrolled (free-flow)

3.2.3 Future Conditions

Future traffic volume development was completed for this study with the use of SPC’s travel demand model. SPC’s travel demand model encompasses a 10-county region, with complete coverage of the study area. 2017 and 2040 Long Range Plan highway network files and trip tables were provided by SPC. Network coding in the study area was verified for both networks.

Streetlight data, which uses real time GPS and cell phone location information, was used within the travel demand model to better understand travel patterns within the study area. The results of the analysis were presented at Steering Committee Meeting 2. A summary of the meeting and the presentation are included in **Appendix C**.

Streetlight data used with this project generated study area specific time of day factors by purpose. Time of day factors by purpose were applied to SPC’s 24-hour trip table, which are also separated by purpose, to segment the model into peak period models. Historical time of day factors have been used from the SPC household survey in 2005, use of the Streetlight data to generate these factors for current travel trends specific to the study area was a unique application of this information.

Once peak period models for the AM and PM were produced, calibration could begin. Existing AM and PM peak hour and Average Daily Traffic (ADT) volumes were compiled from various sources for use in calibration. These actual field collected volumes were used to compare to volumes produced from the model. Adjustments were made to the networks and trip tables to align volumes in the model as closely as possible to the field data. In areas where model output was not statistically accurate enough, modifications were performed. All calibration adjustments and modifications are carried forward from the 2017 model runs to the 2040 model runs. The result is calibrated 2040 travel demand model runs which are then used to generate detailed intersection turning movement volumes and corridor ADTs.

3.2.4 2040 Traffic Volumes

The full future peak hour volumes and ADT Volumes, with and without the final segment of the Southern Beltway, connecting to the Mon Fayette Expressway (MFE) are available in **Appendix D**. A summary of the ADT volumes is shown below in **Table 3-2**.

Table 3-2: ADT Volumes

Corridor	2018 (Veh)	2040 Without MFE Connection (Veh)	2040 With MFE Connection (Veh)
McClelland Rd between Demar Blvd and US 19	14,700	23,600	14,200
Weavertown Rd between Morganza Rd and I-79 SB on-ramp	16,000	20,700	13,900
Pike St between Morganza Rd and Central Ave	9,500	13,300	13,000
Morganza Rd between W McMurray Rd and Southpointe Blvd	4,000	17,300	14,700
Southpointe Blvd between I-79 NB off-ramp and Morganza Rd	13,700	17,400	11,100
W McMurray Rd between Morganza Rd and US 19	13,500	14,200	7,900

Corridor	2018 (Veh)	2040 Without MFE Connection (Veh)	2040 With MFE Connection (Veh)
Morganza Rd between Southpointe Blvd and Curry Ave	8,100	10,100	8,700
Racetrack Rd between Tanger Blvd and Meadows Dr	14,000	15,700	15,400
Washington Rd (US 19) between Racetrack Rd and Meadowbrook Dr	15,600	18,100	19,700
Main St between Burgettestown Rd and Wabash Ave	6,300	9,800	9,600
Washington Rd (US 19) between McMurray Rd and Donaldson Crossroads Driveway	26,200	31,900	33,300
Millers Run Rd (SR 50) between Reissing Rd and Cecil Henderson Rd	7,800	8,500	8,600

The impacts of the potential extension of the Southern Beltway to the Mon Fayette Expressway was not evaluated in detail. Instead, general trends of how daily traffic volumes are anticipated to change between the different development scenarios were investigated. The scenarios include: 2018 Existing Condition, 2040 Southern Beltway Extension to I-79, and the 2040 Southern Beltway Extension to the Mon Fayette Expressway. McClelland, Weavertown, W McMurray, and Morganza Road traffic volumes are anticipated to spike with the Southern Beltway connection to I-79, while the potential extension of the Southern Beltway to the Mon Fayette Expressway is anticipated to reduce traffic volumes on those area roadways. Washington Road (US 19) volumes are anticipated to increase with the extension of the Southern Beltway to the Mon Fayette Expressway. The long-range recommendations proposed in this study may need to be reevaluated if the extension to the Mon Fayette Expressway is ultimately advanced. At the time of this study, there is currently no financial plan in place for the Turnpike Commission to proceed with final design, right-of-way acquisition and construction of the Southern Beltway Extension to the Mon Fayette Expressway.

3.2.5 Future Conditions No Build Traffic Capacity Operational Analysis

Trafficware’s Synchro/SimTraffic version 9 was utilized to analyze each of the 40 signalized and unsignalized intersections for the future no build condition. The Synchro/SimTraffic analysis utilized in the existing condition were updated with the future year volumes. **Figure 3-2** and **Table 3-3** summarize the LOS for each location during the AM and PM peak periods.

Figure 3-2: 2040 Future Level of Service (Map)

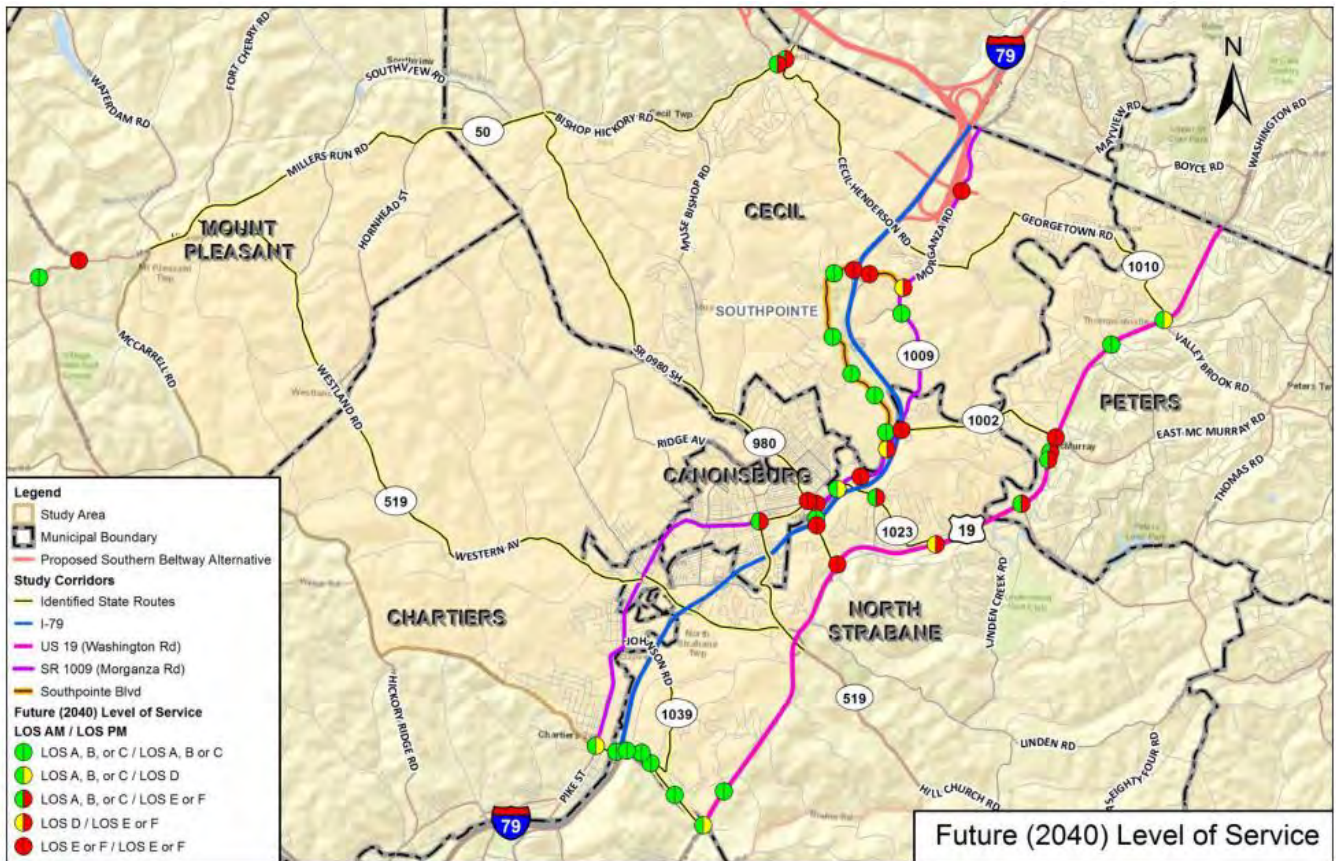


Table 3-3: 2040 Future Level of Service - No Mitigation

ID	North/South	East/West	Control Type	Overall AM (PM)
0980-02	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/Euclid Ave (SR 0980)	Signal	F-129.8 (F-161.3)
1009-02	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	Stop	F-79.3 (F-212.8)
1009-05	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/Old Morganza Rd	Signal	D (E-69.3)
1009-06	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	Stop	C (A)
1009-08	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	Stop	F-248.0 (F-304.3)
1009-09	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	D (F-107.7)
1009-10	Curry Ave	Morganza Rd (SR 1009)	Stop	F-75.3 (F-140.1)
1009-11	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal	C (D)
1009-12	Weavertown Rd (SR 1025)/Cavasina Dr	Morganza Rd (SR 1009)	Signal	F-393.2 (F-993.8)
1009-14	Pike St (SR 1009)/ (SR 0980)	North Central Ave (SR 0980)/ (SR 1027)	Signal	B (E-63.3)
1023-01	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	B (F-330.8)

ID	North/South	East/West	Control Type	Overall AM (PM)
1025-01	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	*A (A)
1025-02	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	Stop	F-1008.7 (F-1730.0)
1032-01	I-79 NB Ramps	Southpointe Blvd (SR 1032)	Stop	F-1161.2 (F-3116.5)
1032-02	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	F-86.3 (F-331.7)
1032-03	Southpointe Blvd	Corporate Drive	Signal	C (C)
1032-04	Southpointe Blvd	Technology Dr (North)	Signal	A (B)
1032-05	Southpointe Blvd	Technology Dr (South)	Signal	A (B)
1032-06	Southpointe Blvd	Consol Energy Dr	Signal	A (C)
1032-07	Southpointe Blvd	Town Center Way	Signal	A (C)
0019-03	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	C (D)
0019-05	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley Rd	Signal	B (C)
0019-07	Washington Rd (US 0019)	McMurry Rd (SR 1002)	Signal	E-65.3 (F-160.0)
0019-08	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	B (E-69.0)
0019-09	Washington Rd (US 0019)	McDowell Ln	Signal	B (E-77.5)
0019-11	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C (E-74.4)
0019-12	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	D (E-79.0)
0019-14	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	F-80.5 (F-91.2)
0050-01	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	Stop	C (E-47.7)
0050-02	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	Stop	C (F-96.7)
0018-01	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	Stop	F-50.9 (F-56.9)
0018-02	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	Stop	B (B)
0019-15	Washington Rd (US 0019)	Meadowbrook Dr	Signal	B (B)
0019-16	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	B (D)
1009-19	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (D)
1041-01	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	B (C)
1041-02	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	A (B)
1041-03	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (B)
1041-04	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	C (C)
1041-05	Racetrack Rd (SR 1041)	Meadows Rd	Signal	B (B)

* Approach is uncontrolled (free-flow)

3.2.6 Future Conditions Mitigated Traffic Capacity Operational Analysis

To facilitate the development of concept alternatives and laning requirements for potential improvements, the analysis conducted for the No Build scenario was modified to achieve a LOS D or better for the study area intersections. The resulting LOS are summarized below in **Table 3-4**.

Table 3-4: 2040 Future Level of Service – With Mitigation

ID	North/South	East/West	Control Type	Overall AM (PM)
0980-02	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/Euclid Ave (SR 0980)	Signal	D(D)
1009-02	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	Stop	B(C)
1009-05	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/Old Morganza Rd	Signal	C(D)
1009-06	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	Stop	A(A)
1009-08	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	Stop	B(C)
1009-09	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	C(C)
1009-10	Curry Ave	Morganza Rd (SR 1009)	Stop	A(A)
1009-11	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal	C(D)
1009-12	Weavertown Rd (SR 1025)/Cavasina Dr	Morganza Rd (SR 1009)	Signal	C(D)
1009-14	Pike St (SR 1009)/ (SR 0980)	North Central Ave (SR 0980)/ (SR 1027)	Signal	B(D)
1023-01	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	B(D)
1025-01	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	A(A)
1025-02	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	Stop	C(C)
1032-01	I-79 NB Ramps	Southpointe Blvd (SR 1032)	Stop	C(C)
1032-02	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	C(D)
1032-03	Southpointe Blvd	Corporate Drive	Signal	B(C)
1032-04	Southpointe Blvd	Technology Dr (North)	Signal	A(B)
1032-05	Southpointe Blvd	Technology Dr (South)	Signal	A(B)
1032-06	Southpointe Blvd	Consol Energy Dr	Signal	A(C)
1032-07	Southpointe Blvd	Town Center Way	Signal	A(C)
0019-03	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	A(C)
0019-05	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley Rd	Signal	B(C)
0019-07	Washington Rd (US 0019)	McMurry Rd (SR 1002)	Signal	C(D)
0019-08	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	B(D)
0019-09	Washington Rd (US 0019)	McDowell Ln	Signal	B(E-55.9)
0019-11	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C(D)
0019-12	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	D(D)
0019-14	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	C(C)
0050-01	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	Stop	A(A)
0050-02	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	Stop	A(A)

ID	North/South	East/West	Control Type	Overall AM (PM)
0018-01	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	Stop	F-50.9 (F-56.9)
0018-02	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	Stop	B (B)
0019-15	Washington Rd (US 0019)	Meadowbrook Dr	Signal	B (B)
0019-16	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	B (C)
1009-19	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (D)
1041-01	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	C (C)
1041-02	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	B (B)
1041-03	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (C)
1041-04	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	C (C)
1041-05	Racetrack Rd (SR 1041)	Meadows Rd	Signal	B (C)

The full LOS tables for all three scenarios can be found in **Appendix E**; additionally, the full LOS table for the mitigated scenario identifies the mitigation.

3.3 Safety Analysis

Crash data for the study area was reviewed to identify problem areas and collision hotspots. Crash data was collected for the years 2011-2015 from PennDOT District 12-0 for the Study Corridors and Peters Township Police Department within the Study Area for the Northern Washington County Data Collection Project. **Figure 3-3** shows the PennDOT and Peters Township crashes symbolized by the number of crashes that occurred at each location and where major injury and fatal crashes occurred.

These crashes were reviewed in more detail by the project team, PennDOT and municipal representatives to identify problem areas, accident hotspots, and to help identify mitigation strategies. The crash data was also reviewed to identify bicycle and pedestrian collisions. Of the 1700 crashes in the study area, 13 involved pedestrians. One of the 13 pedestrian crashes resulted in a fatality in 2013, along US-19 between the ramps to/from SR 980 (near the Canonsburg Park-n-Ride lot). There were no bicycle collisions.

Fifteen (15) locations (intersections or roadway segments) with the highest number of crashes were identified for further evaluation. The selected intersections are featured on **Figure 3-4** and in **Table 3-5** following the map. Each of the 15 locations were investigated and classified as to the primarily cause for the safety issue: unsignalized intersection, congestion, or geometrics. Most of the safety concerns are located along US 19 at unsignalized intersections or signalized intersections experiencing congestion. Unsignalized intersection safety concerns are generally due to lack of turning lanes and poor sight distances due to overgrown trees, vegetation and hillsides.

Figure 3-4: Intersections and Safety Concerns (Map)

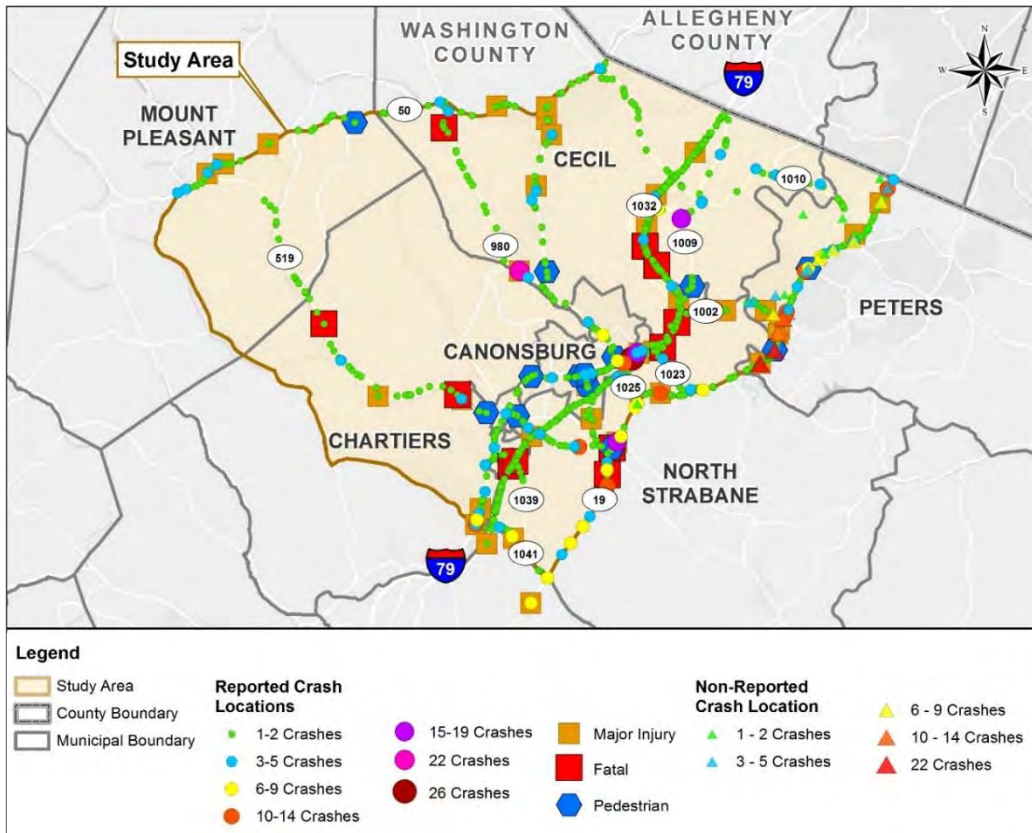
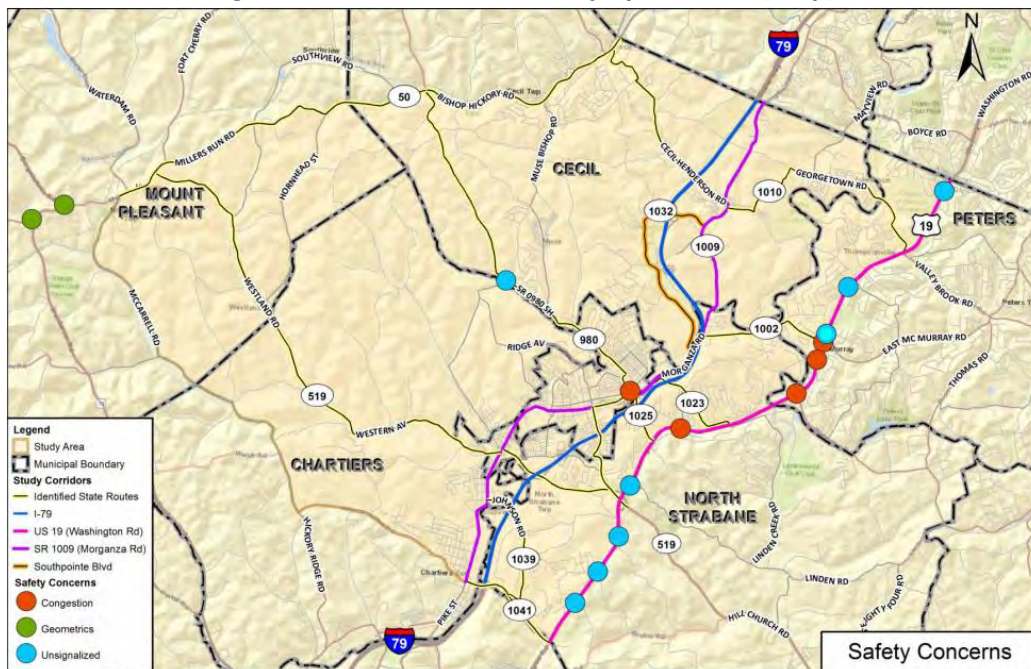


Figure 3-4: Intersections and Safety Concerns (Map)



In accordance with PennDOT distribution rules, this traffic engineering and safety data is confidential pursuant to 75 Pa. C.S. §3754 and 23 U.S.C. §409 and may not be disclosed or used in litigation without written permission from PennDOT.

Table 3-5: Locations with the Highest Number of Crashes

Location #	Location ID	Intersection Associated	Control	Classification	# of Crashes	Route
1	0980-0090	Euclid Ave (0980) and O'Hare Ave	Stop	Unsignalized	22	980
2	0019-0520	0019 and Waterdam Plaza Dr	Signal	Congestion	18	19
3	0019-0480	0019 and Linden Road	Stop	Unsignalized	15	19
4	0019-0540	0019 and West McMurray Road	Signal	Congestion	14	19
5	0019-0450	0019 and Chubbic Road	Stop	Unsignalized	13	19
6	0019-0540	0019 and Old Oak Road	Stop	Unsignalized	12	19
7	0019-0490	0019 and Demar Blvd/N. Strabane Ctr	Signal	Congestion	10	19
8	0019-0551	0019 and Center Church Road	Stop	Unsignalized	10	19
9	0019-0600	0019 and Circle Drive	Stop	Unsignalized	10	19
10	0019-0530	0019 and McDowell Lane	Signal	Congestion	9	19
11	0980-0050	0980 and Morganza/Adams	Signal	Congestion	7	980
12	0019-0430	0019 and Conklin Road	Stop	Unsignalized	6	19
13	0019-0440	0019 and Mansfield Road	Stop	Unsignalized	5	19
14	0050-0590	0050 and Burgettstown Road	Stop	Geometrics	13	18
15	0018-0580	0018 and Avella Road	Stop	Geometrics	5	18

3.4 Mobility and Accessibility Analysis

The Metro Commuter and Freedom Line transit routes operate within the Study Area, operated by Freedom Transit. One Park-n-Ride lot located at Southpointe Boulevard / Morganza Road is dedicated to the Metro Commuter. Two additional Park-n-Rides lots (with no transit service) are located in North Strabane Township at SR 519 at Hill Church Houston Road and SR 19 (Washington Road) & SR 519 in Canonsburg. The existing bus routes and Park-n-Ride lot locations were used in the analysis to identify operation bottlenecks that overlap with transit routes and could affect flow of transit vehicles.

Mobility and Accessibility was discussed at the Steering Committee Meetings. Each municipality in the study area was given the opportunity to identify key bicycle and pedestrian corridors. Based upon the collected information, the team identified major corridors for restrictive roadway widths or physical bottlenecks that constitute barriers to bicycles and pedestrian accommodations. Additional discussions with the municipalities identified existing multimodal linkages between residential areas where there are opportunities to improve connections to commercial, employment centers, civic and community facilities. Future land uses and planned developments have been considered to determine if additional linkages are necessary. Some of the key elements emerging from this meeting included:

3.4.1 Additional Park-n-Ride Locations Needed Along I-79 North and South

Freedom Transit commented on the need for additional Park-n-Ride locations. Suggested locations included Morganza Road near Fawcett Church Road and on Hill Church Houston Road (SR 519). During the meeting, a desire was also expressed to evaluate demand for a Park-n-ride within Peters Township. Lastly, two concerns were brought up about existing Park-n-Rides: the existing Southpointe Boulevard Park-n-Ride needs maintenance and the existing PennDOT Park-n-Ride at SR 19 & SR 519 is underutilized and needs maintenance. Overall, stakeholders noted that transit improvements were the key to keeping traffic flowing with the planned development in the area; some stakeholders commented that lack of transit service was hurting local business. During the meeting, it was also mentioned that several retailers are leaving the area because they are having trouble finding employees, which could potentially be due to a lack of transit services, particularly for food service workers (the Dairy Queen on SR 19 was given as an example).

3.4.2 Connectivity

Stakeholders pointed out several connectivity issues in the area, citing the need for pedestrian improvements as well as overall roadway and traffic improvements. For example, participants noted the need for sidewalks along Racetrack Road; there are existing crosswalks, but no sidewalk. There was also a desire to improve pedestrian connectivity between several of the main communities within Northern Washington County. The existing sidewalks may need improvements but provide a start towards achieving a more multi-modal focused community. While each of the communities (Houston, Canonsburg, and Southpointe) have some existing sidewalks, they do not connect to one another – creating areas that pedestrians cannot readily or safely travel. In Houston, specifically, recommendations included:

- Extending sidewalks to the East to improve access between Canonsburg and Southpointe
- Extending sidewalks to the South to provide access to Strabane, with the sidewalk continuing to the proposed Park-n-Ride on Hill Church Houston Road, mentioned above

In Cecil, stakeholders suggested connecting the Montour Trail to Southpointe and to the existing Park-n-Rides in Canonsburg.

Lastly, design of pedestrian facilities will be important to enable people to safely cross structures and the I-79 ramps (for example, in Canonsburg, along the Pike corridor).

For vehicular connections, specific roadway and traffic concerns included:

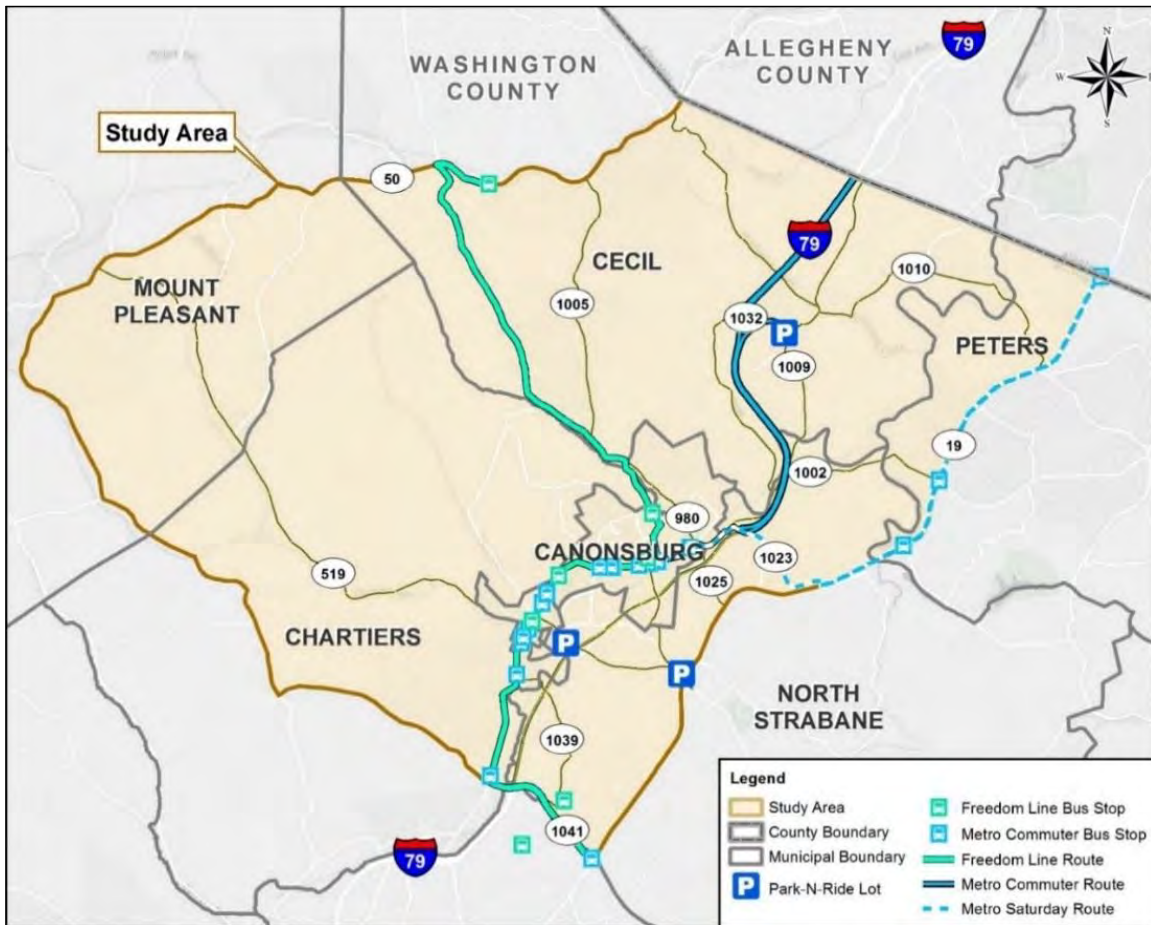
- Improving connectivity between SR 19 and I-79; one recommendation was to evaluate upgrading and extending Georgetown Road to I-79.
- The McDowell Lane one-lane bridge potentially becoming a problem in the future
- West McMurray Rd becoming the most likely route to the Southern Beltway, which is already very congested

3.4.3 Transit Facilities

The Metro Commuter and Freedom Line bus routes operate within the Study Area. Both services are operated by Freedom Transit. The Metro Commuter provides service to Pittsburgh Monday through Friday and to the South Hills on Saturdays. The Freedom Line provides service between McDonald and Washington Monday through Friday. One Park-n-Ride lot located at Southpointe Boulevard / Morganza Road is dedicated to the Metro Commuter. Two additional Park-n-Ride lots are located in North Strabane Township at SR 519 at Hill Church Houston Road and SR 19 & SR 519 in Canonsburg.

Transit facility routes were obtained from SPC and verified against the Freedom Transit website. The Freedom Line Route was added to the layer using the Freedom Transit website as reference. Additionally, the bus stops along the Metro Commuter and Freedom Line were input into a GIS layer by referencing the Freedom Transit website. Park-n-Ride lots were located using the Park-n-Ride web map provided by CommuteInfo. See **Figure 3-5** below for a map of transit facilities in the Study Area.

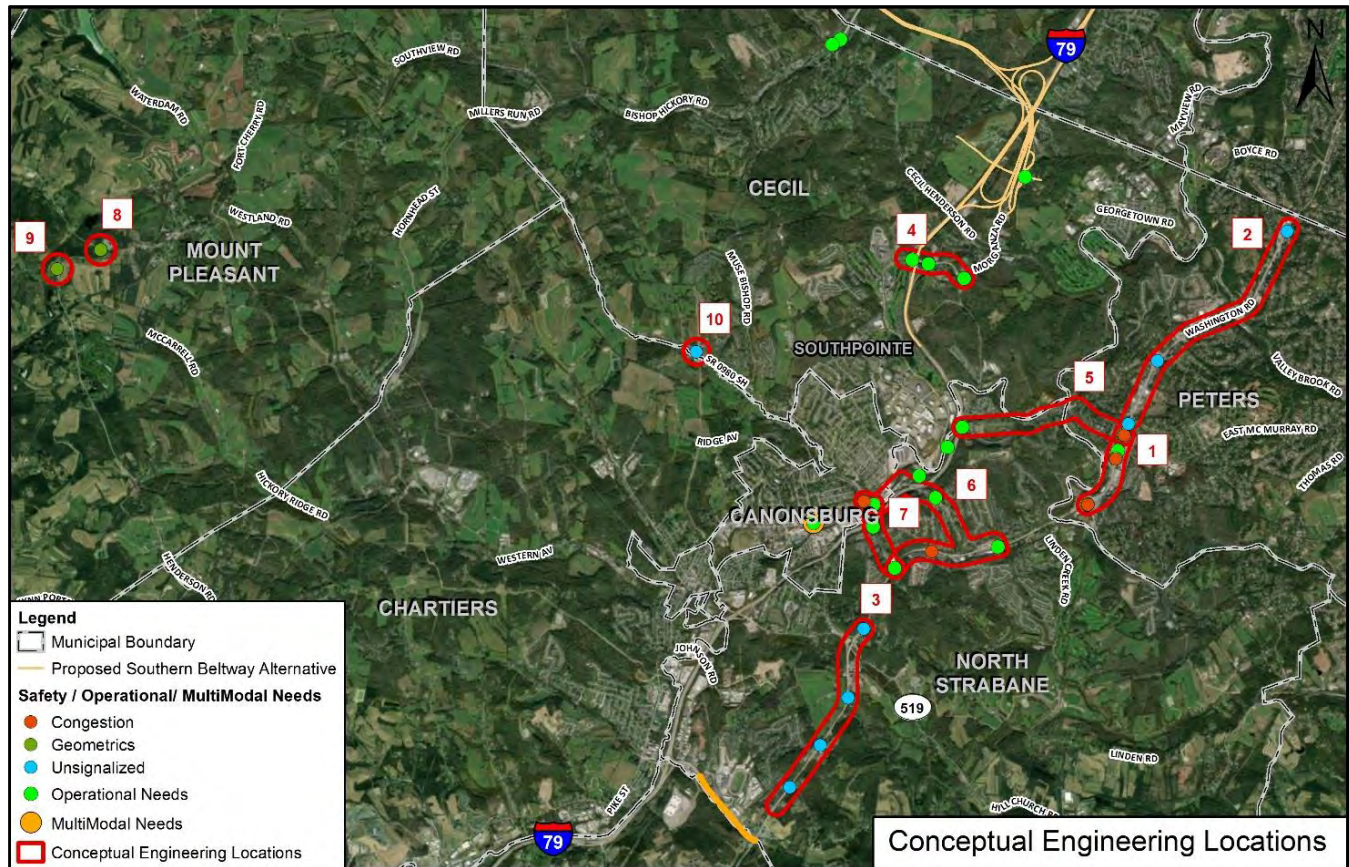
Figure 3-5: Transit Facilities (Map)



3.5 Conceptual Engineering Locations

Improvements were identified for ten (10) Concept Location corridors based on the results of the traffic, safety, and mobility and accessibility analyses. The corridors and concept locations are highlighted in red below on **Figure 3-6**. Detailed maps of each concept location and its associated improvements can be found in **Appendix A**.

Figure 3-6: Conceptual Engineering Locations (Map)



1. US 19 Corridor from Old Oak Road to Waterdam Road

Improvements along US 19 at this concept location included operational and safety measures. Operational improvements were identified at US 19 and McMurray (0019-07) Donaldson Crossroads (0019-08), McDowell Lane (0019-09), and Waterdam Road (0019-11). Safety improvements along US 19 were identified at the intersections of US 19 and McMurray (0019-0540), Old Oak Road (0019-0540), McDowell Lane (0019-0530), and (0019-0520). Other recommendations at this concept location included evaluating restricting turns for safety improvements and evaluating a possible connector road between shopping centers. At the US 19 and Waterdam Rd intersection, recommendations included adding one southbound receiving lane, adding a left turn lane to make dual left turns, and modifying the existing signal to help with operations.

2. US 19 Northern Corridor from County line to Old Oak Road

Improvements along US 19 at this concept location recommended evaluating unsignalized crash locations for safety improvements involving turn restrictions, increasing sight distance where possible, and increasing signage at unsignalized intersections 0019-0551 and 0019-0600. A raised median along US 19 will restrict lefts in and out, turns will be redirected to the Northern Old Oak Rd Intersection to increase safety along the corridor.

3. US 19 Southern Corridor from Linden Road to Racetrack Road

Improvements along US 19 at this concept location recommended evaluating unsignalized crash locations for safety improvements at the following unsignalized intersections: 0019-0480, 0019-0450, 0019-0440, and 0019-0430. It is recommended to put in a center median to restrict lefts in and out along this corridor. A raised median is recommended along this corridor to improve safety and limit conflicts.

4. Southpointe Boulevard from I-79 to Morganza Road

Operational improvements along Southpointe Blvd. (SR 1032) at this concept location were recommended at the following intersections: I-79 SB Ramps and Southpoint Blvd (1032-02), I-79 NB Ramps and Southpoint Blvd (1032-01), and Morganza Road and Southpoint Blvd (1009-05). A recommendation also emerged to evaluate widening the corridor to four lanes at this concept location. The Southpointe Blvd and I-79 SB Off ramps intersection was of concern due to a safety issue of queuing backing up onto I-79 during peak hours. Capacity at this intersection is recommended to be increased to prevent this issue from occurring in future year conditions.

5. McMurray Road Corridor between US 19 and Morganza Road

At this concept location, the analysis recommended making improvements to intersection operations at Morganza Road and McMurray Road (1009-08). It was also suggested to potentially expand the concept location from just the intersection of Morganza Road and McMurray Road. The intersection is recommended to be signalized at W. McMurray Rd and Morganza Rd. Sidewalks are recommended along McMurray Road to improve mobility, guiderail is to be replaced and added to improve safety, and a center turn lane is improved to help overall operations along this corridor.

6. McClelland Road Corridor from US 19 to Morganza Road, US 19 between McClelland Road and Weavertown Road and Morganza Road between McClelland Road and Weavertown Road

Two sets of improvements were considered at this Concept Location and Concept Location 7. The first improvements included modifications “on-alignment” and the second set of improvements included new connector roads. The “on-alignment” recommendations at this concept location included improving operations at McClelland and McDowell Road (1023-01)/Demar Blvd, McClelland and US 19 (0019-12), and Adams Ave and Morganza (0980-02). Safety improvements were made at Adams Ave and Morganza Road (0980-0050) and Demar and US 19 (0019-0490). Signal improvements and additional lanes will help safety and improve operations along this corridor. A roundabout is to be considered at the McClelland Rd and DeMar Blvd/McDowell Rd intersection.

For the connector road alternatives, the intention was to provide better connectivity between McClelland and Weavertown Road interchanges and relieve congestion on the existing roadway facilities. The connectors would significantly impact travel patterns in this part of the study area. Additional traffic analysis would need to be conducted to better understand the implications to traffic patterns and operations at the existing study area intersections.

7. Weavertown Road Corridor from US 19 to Morganza Road

Two sets of improvements were considered at this Concept Location and Concept Location 6. The first improvements included modifications “on-alignment” and the second set of improvements included new connector roads. The “on-alignment” recommendations at this concept location included operational improvements at Weavertown Road and US 19 (0019-14), I-79 NB Off Ramp and Weavertown Road (1025-02) and Weavertown and Morganza (1009-12).

As stated under Concept Location 6, the connector road alternatives will need to be investigated further to understand the impacts to travels patterns and traffic operations at the existing study area intersections.

8. SR 18 (Burgettstown Road) and SR 50 (Hickory Road) (0018-01)

Improvements along SR 18 at this concept location recommended evaluating the unsignalized intersection of Burgettstown Rd and Main Street (0018-01/0050-0590) for operational and safety improvements. The main concern found at this location was safety. Recommendations include all way stop control, increased signage, and installation of intersection lighting to mitigate the safety concerns.

9. SR 18 (Henderson Road) and SR 50 (Avella Road) (0018-02)

Improvements along SR 18 at this concept location recommended evaluating the unsignalized intersection of Henderson Rd and Avella Rd (0018-0580) for safety improvements for both a near-term solution and a short-term solution. The near-term solution utilizes lower cost alternatives such as access management along the frontage of the gas station on the West side of the intersection, intersection lighting, and advanced signage. The short-term solution recommends creating a 3-way intersection with Main Street/Henderson Road remaining free flow and Avella road coming to a T with a stop sign. The short-term alternative also involves driveway relocations, pavement widening, advanced signage and advanced pavement markings to help mitigate safety concerns at this location.

10. SR 980 and O’Hare Road (0980-0090)

Improvements along SR 980 at the last concept location recommended evaluating the unsignalized intersection of Euclid and O’ Hare Avenue (0980-0090) for safety improvements. To mitigate the high number of crashes found at this location, it is recommended that grading is performed to help improve sight distance.

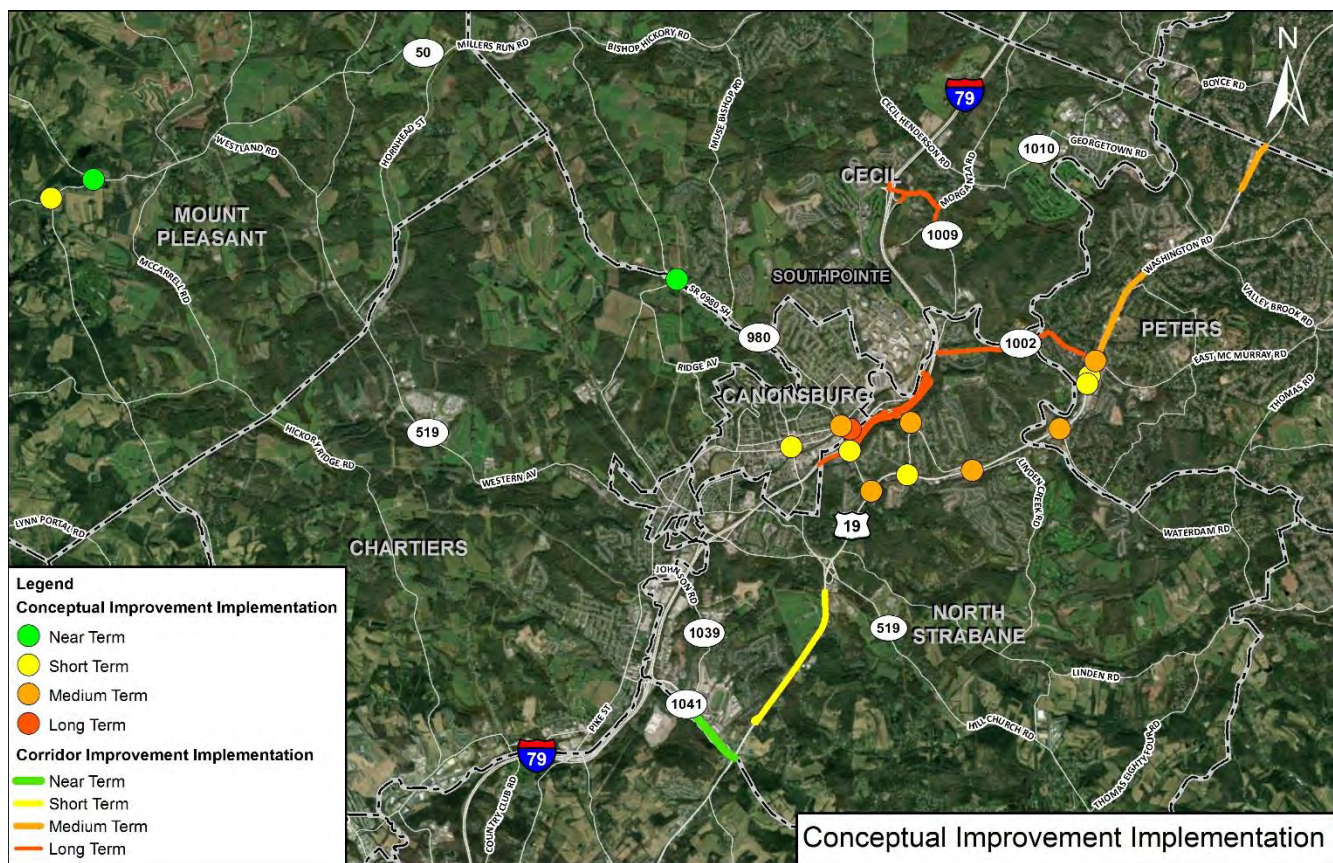
3.5.1 Concept Cost Estimates

The alternatives were categorized into Near-Term, Short-Term, Medium-Term, and Long-Term improvements as defined by anticipated cost:

Near-Term	under \$100,000
Short-Term	under \$1 million
Medium-Term	\$1 - \$10 million
Long-Term	Over \$10 million

Each Concept Location and its associated cost is summarized in **Appendix A and B, respectively**, along with the cost estimate backups. A map of concept improvements implementation is shown below in **Figure 3-7**, please refer to **Figure 3-6** on page 20 for the Conceptual Engineering Locations (Map).

Figure 3-7: Concept Cost Estimates (Map)



4 RECOMMENDATIONS & CONCLUSION

Based on this study, a list of near-term, short-term, medium-term, and long-term improvement projects at ten different concept locations were developed to mitigate existing system deficiencies as well as forecasted deficiencies related to the Southern Beltway project and future developments within the study area. A high-level budgetary cost estimate is provided for additional information.

Generally, the improvement concepts were divided into three categories: Safety Improvements, Operational Improvements, and Mobility Improvements. Within Safety, the improvements that were evaluated included the following:

- Geometric improvements (including roadway widenings and adding lanes)
- Unsignalized intersection mitigations
- Access management strategies

Within Operations, improvements evaluated included the following:

- Adaptive traffic signals
- Adding and/or extending turning lanes
- Frontage roads
- Connector roads

Transit and Mobility improvements draw largely from the 2016 Transit Development Plan¹, which examined the following improvements:

- Reallocation of service
- Development of a service spine between City of Washington and Canonsburg
- Additional Park-n-Ride and/or transfer facilities in Canonsburg
- Piloting on-demand, shared ride local service

Given the 2013 pedestrian fatality, this study also recommends increasing accessible pedestrian connections to and from Park-n-Ride lots.

4.1 Potential Funding Sources

Competition for available transportation funding is ever increasing. The current levels of traditional regional transportation funding, coupled with further examination and analysis of each proposed transportation improvement project, typically results in a lengthened time frame for the completion of complex and costly projects such as the Long-Term concepts within this study. Decision makers and communities are more likely to advance a collaborative and comprehensive partnering project that improves mobility and safety on a regional corridor rather than within isolated communities. To justify the use of tightening regional transportation dollars and accelerate the completion of the recommended projects within the study, new partnerships will need to be created, and the partnerships will be required to pursue funding programs outside of and in conjunction with the regional Transportation Improvement Program (TIP) and employ policies and tools permitted for transportation investments.

¹ While the summary table in **Appendix B** does not include specific transit improvements, operational and safety improvements on key corridors and concept locations will lay the groundwork for service improvements and improved transit operations in conjunction with the recommendations in the previously completed Transit Development Plan.

To advance the recommended program of projects within this study, available funding should be sought, secured through new or enhanced partnerships. There are several traditional and non-traditional competitive funding programs and mechanisms available to advance the improvement projects.

Table 4-1 lists potential funding mechanisms available for roadway and property owners ranging from federal, state, and local funds to private dollars. The table includes:

- State and Federal Transportation funds through programs affiliated with the SPC TIP, including competitive TIP programs such as the Transportation Alternatives Set-Aside (TA) Program, Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and the Highway Safety Improvement (HSIP) Program.
- Federal discretionary programs awarded on a competitive basis such as the BUILD and FASTLANE Programs, which anchor economic revitalization and job growth in communities; are nationally and regionally significant freight and highway projects that improve the safety, efficiency, and reliability of the movement of freight and people; and anchor economic revitalization and job growth in communities that will have a significant local or regional impact
- Statewide Discretionary Programs such as the PennDOT and DCED Multimodal Transportation Fund and the DCED Greenways Trails and Recreation Fund
- Traffic signal and safety improvement and congestion reduction programs such as the SPC Regional Traffic Signal Program and the Green Light-Go Program
- Developer funding agreements, Transportation Impact Fees and partnership opportunities with the private sector and developers

The Programs listed in the Program ID column in **Table 4-1**² are matched with the Conceptual Improvements in the Potential Funding Program column within **Appendix B-2**.

Table 4-1: Funding Programs

Program ID	Funding Program	Funding Cycle
A.	PennDOT Automated Red-Light Enforcement Program (ARLE)	Annual
B.	PennDOT Green Light-Go Program	Annual
C.	SPC Regional Traffic Signal Program	Varies
D.	PennDOT Multimodal Transportation Fund	Annual
E.	DCED Multimodal Transportation Fund	Annual
F.	DCNR Community Conservation Partnerships Program (C2P2)	Annual
G.	DCED Greenways, Trails, and Recreation Program	Annual
H.	SPC Transportation Alternatives Set-Aside Program	Biennial
I.	PennDOT Transportation Alternatives Set-Aside Program	Biennial
J.	Washington County LSA Program	Annual
K.	DCED Keystone Communities Program	Annual

² Funding programs and the agencies that administer them will often alter anticipated application cycles, change program evaluation criteria, or even eliminate programs. Contact these agencies or SPC for up-to-date program and application information.

Program ID	Funding Program	Funding Cycle
L.	SPC Congestion Mitigation and Air Quality Improvement (CMAQ) Program	Biennial
M.	SPC Transportation Improvement Program (TIP)	Biennial
N.	PennDOT Pennsylvania Infrastructure Bank (PIB)	Always Open
O.	Highway Safety Improvement Program (HSIP)	Biennial
P.	Partnering with Private Industry and Developers	N/A
Q.	Transportation Impact Fees	N/A
R.	BUILD Program	Annual
S.	FHWA INFRA Program	Annual
T.	PennDOT Connects	N/A

4.1.1 Non-Traditional Development Mechanisms

- Transportation Impact Fees – Rapidly developing areas such as Northern Washington County will often need improvements to the existing transportation network or the creation of new roadways to accommodate growth and prevent system inefficiencies. One tool available for local governments to make improvements to their transportation network is charging Transportation Impact Fees, a mechanism which was authorized in the PA Municipal Planning Code by Act 68 of 2000. Fees are assessed to new development in proportion to the traffic the development is expected to generate; those fees, in turn, are collected and used to improve roadways impacted by the development. Impact fees have limitations and should be carefully considered by each individual municipality to determine if they are an appropriate and effective funding mechanism. Conducting a feasibility study or cost-benefit analysis of issues and the constraints of impact fees before proceeding with implementing an ordinance.
 - The PA Department of Community and Economic Development Governor’s Center for Local Government Services has created an excellent resource for municipalities interested in creating or considering Transportation Impact Fees.
 - PennDOT has a much more expansive handbook for municipalities to understand the background of impact fee use and ultimately adopting an impact fee ordinance.
 - As noted above Transportation Impact Fees have limitations and may not be suitable for every municipality. However, there is no limitation on the authority of PennDOT to require off-site improvements relating to development. Where the required traffic impact study conducted to obtain a highway occupancy permit for a development identifies a deficiency on a state or local road within the scope of the study and demonstrated to be impacted by the development, PennDOT can require the developer to make the improvements necessary to correct the deficiency. The scope of a PennDOT-required traffic impact study typically extends beyond the portion of the road immediately adjacent to the property to be developed. Municipalities should discuss proposed developments with PennDOT staff to determine any increased traffic generated by the development and possible mitigation activities.

- PennDOT Connects – A benefit to the communities within the study area is that this study documents desired transportation improvements along key corridors for consideration and inclusion as part of the PennDOT Connects Planning Process. The priorities identified in this study were compiled with input

from a broad spectrum of local stakeholders and therefore should be considered when major and minor improvements are completed by PennDOT. The recommendations of this study will also be incorporated into the Washington County Comprehensive Plan. Local governments and transit agencies should regularly attend PennDOT Connects and Scoping Field Meetings to discuss their local plans and priorities with PennDOT staff. As noted in **Appendix B**, implementations of the near and possibly short-term improvement projects could be included with existing or future PennDOT projects via the PennDOT Connects process, if there is an existing PennDOT project in the immediate vicinity of the recommended improvement. There is no anticipated revenue source to implement projects via PennDOT Connects; municipalities should plan for and be prepared to share costs or make a contribution for this to occur.

- SPC Long Range Plan (LRP) and Transportation Improvement Plan (TIP) – The regional Long-Range Transportation and Development Plan (LRP) is the mechanism for connecting the Regional Vision to the region’s official, coordinated implementation program of projects and actions. The Long-Range Plan prioritizes programs and projects that have been developed to address the region’s pressing needs to maintain, preserve and optimize our existing transportation assets for the sustainability of the region’s economic competitiveness and the vitality of our communities.

The Transportation Improvement Program (TIP) is the delivery mechanism for advancing transportation investments identified in the LRP. The TIP is updated every two years and sets the schedules for all of the highest priority transportation project and program investments to be advanced over the next four-year period. As the region’s short-term investment strategy, the TIP is the first stage of the LRP. Once on the TIP, funding for specific projects (or project phases) is obligated and most projects proceed into the project development process which may include environmental review, design, utilities, right-of-way acquisition, and ultimately construction.

While the TIP is updated every two years and identifies the priority transportation projects programmed for advancement over the next four years, the LRP is updated every four years and contains a 25-year horizon describing the overall vision of the region’s transportation system, as well as a program of fiscally-constrained transportation projects, programs and initiatives that the region believes there will be sufficient funds to implement to advance the vision and goals of the region’s LRP. **Municipalities should engage in the development process of both the LRP and the TIP to ensure these recommendations are considered when these important regional documents are updated.**

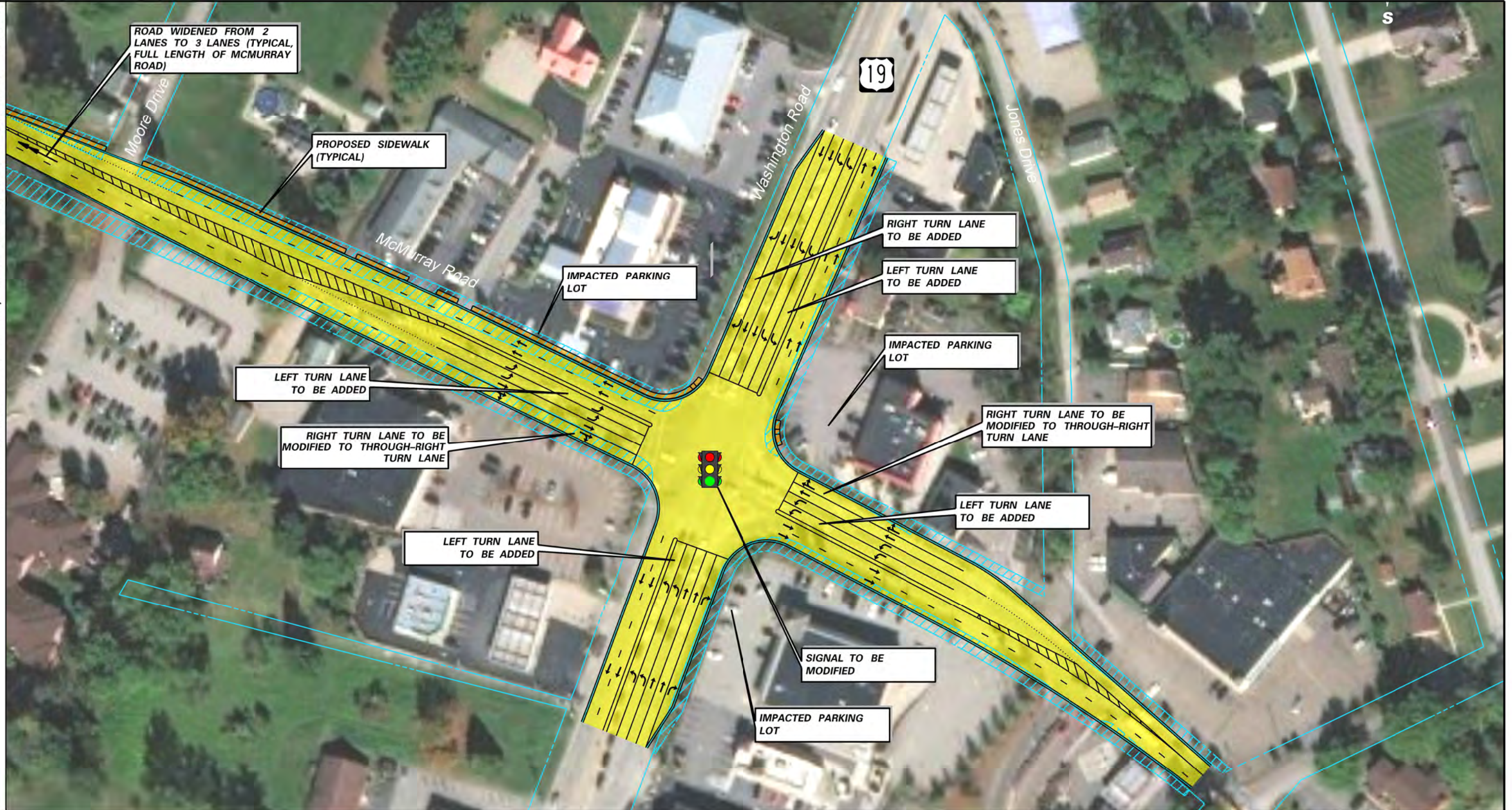
4.2 Conclusion

The recommendations in this study provide concrete, specific guidance on mitigating congestion, operational, safety, connectivity, and accessibility issues in Northern Washington County through traffic analysis and stakeholder and public feedback. Local governments may use the analysis presented in this document as a basis for further study, to apply for state and federal funding, or to prioritize implementation of improvements.

APPENDIX A

Concept Location Maps

MATCHLINE SR 1009, SEE CONCEPT LOCATION 5



- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY
 - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 1: Washington Road (US 19) & McMurray Road (0019-07)"





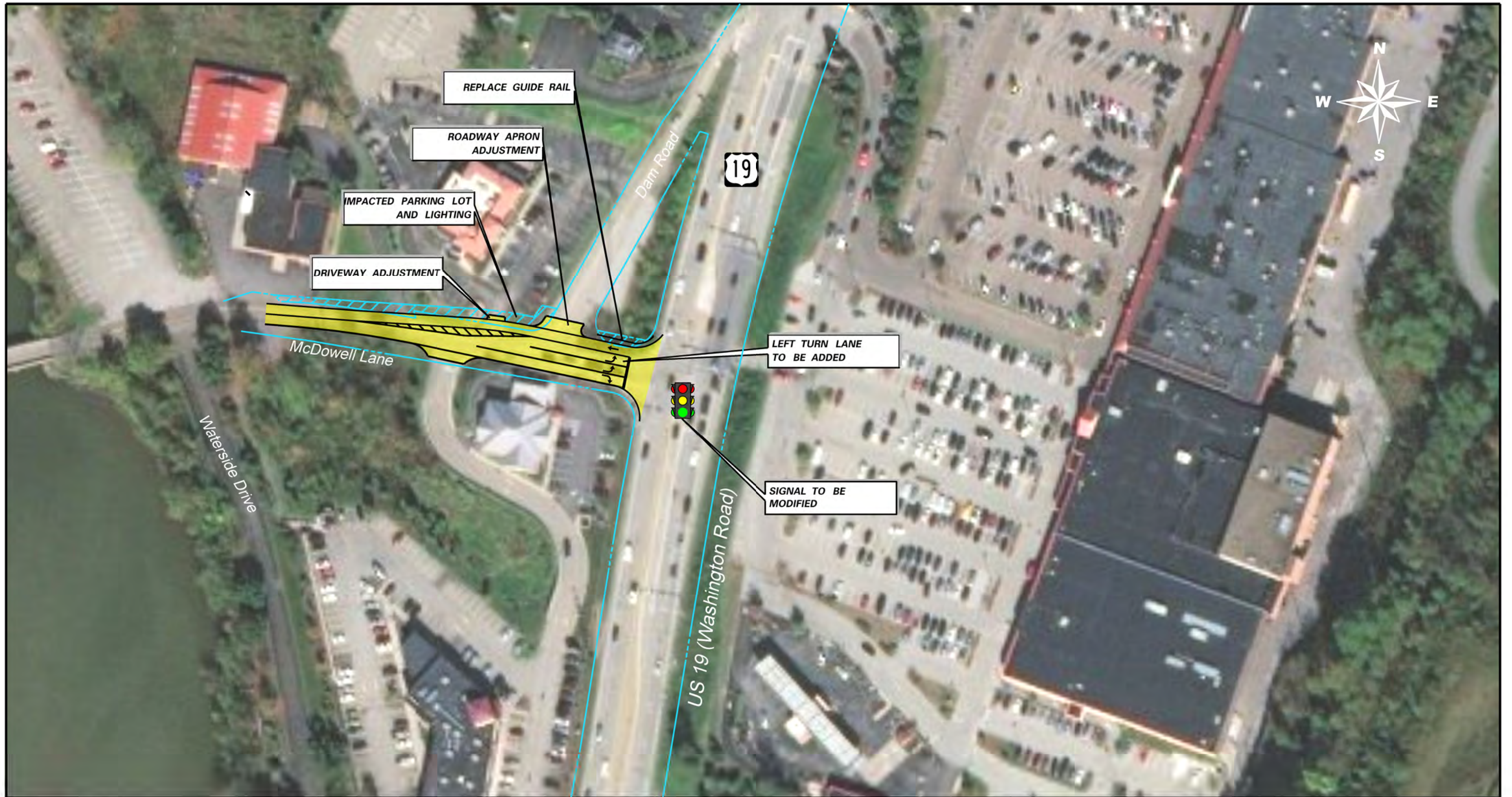
LEGEND

- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED SIDEWALK
- PROPOSED/RECONSTRUCTED BRIDGE
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 1: Washington Road (US 19) & Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)"



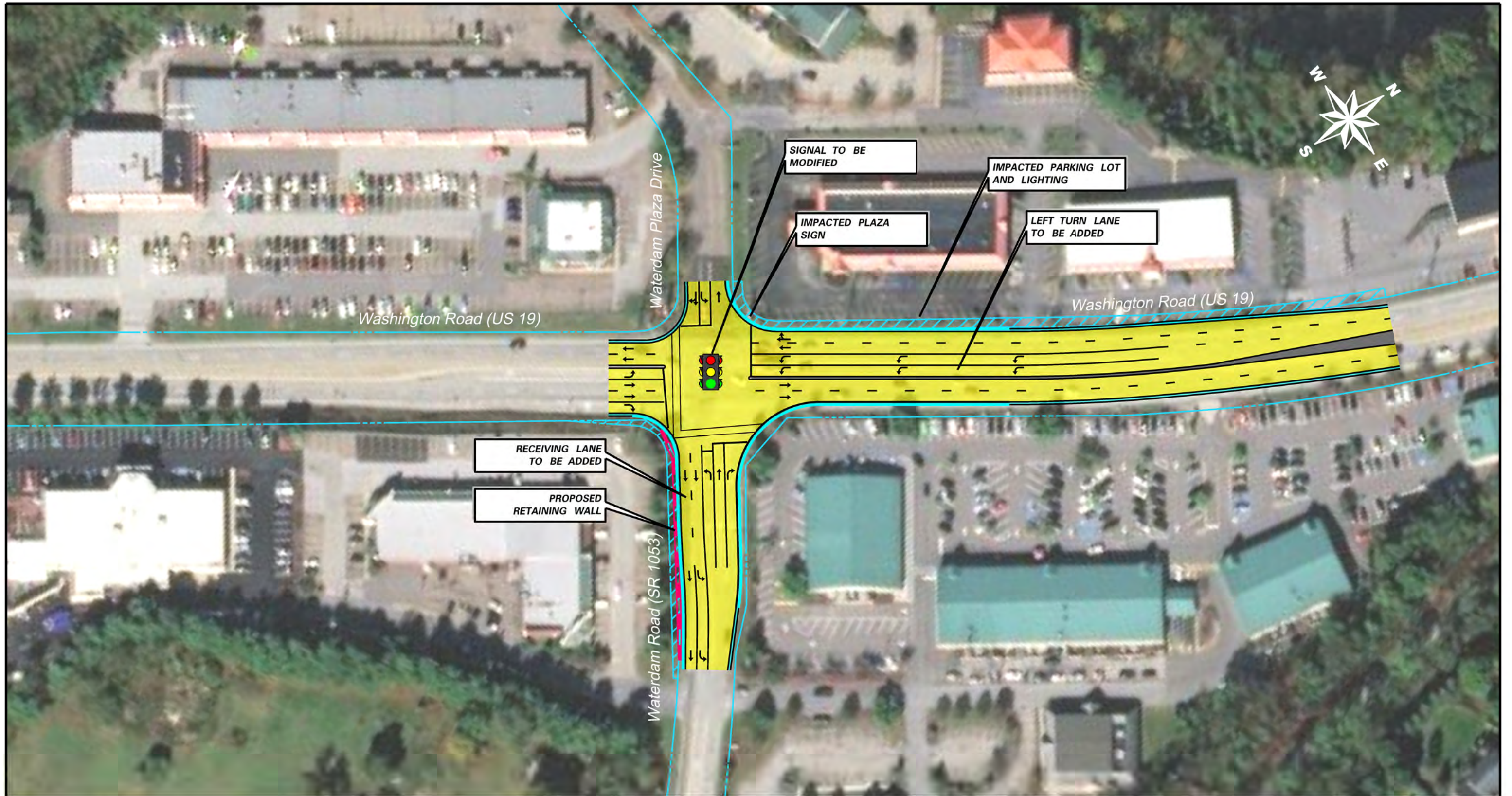


- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY

EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 1: Washington Road (US 19) & McDowell Lane (0019-09)"





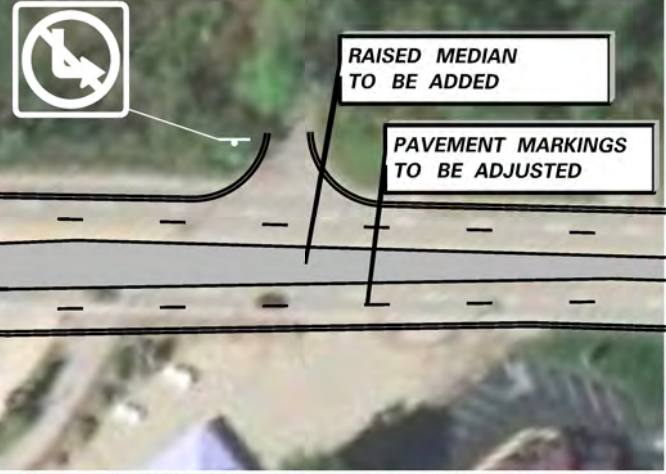
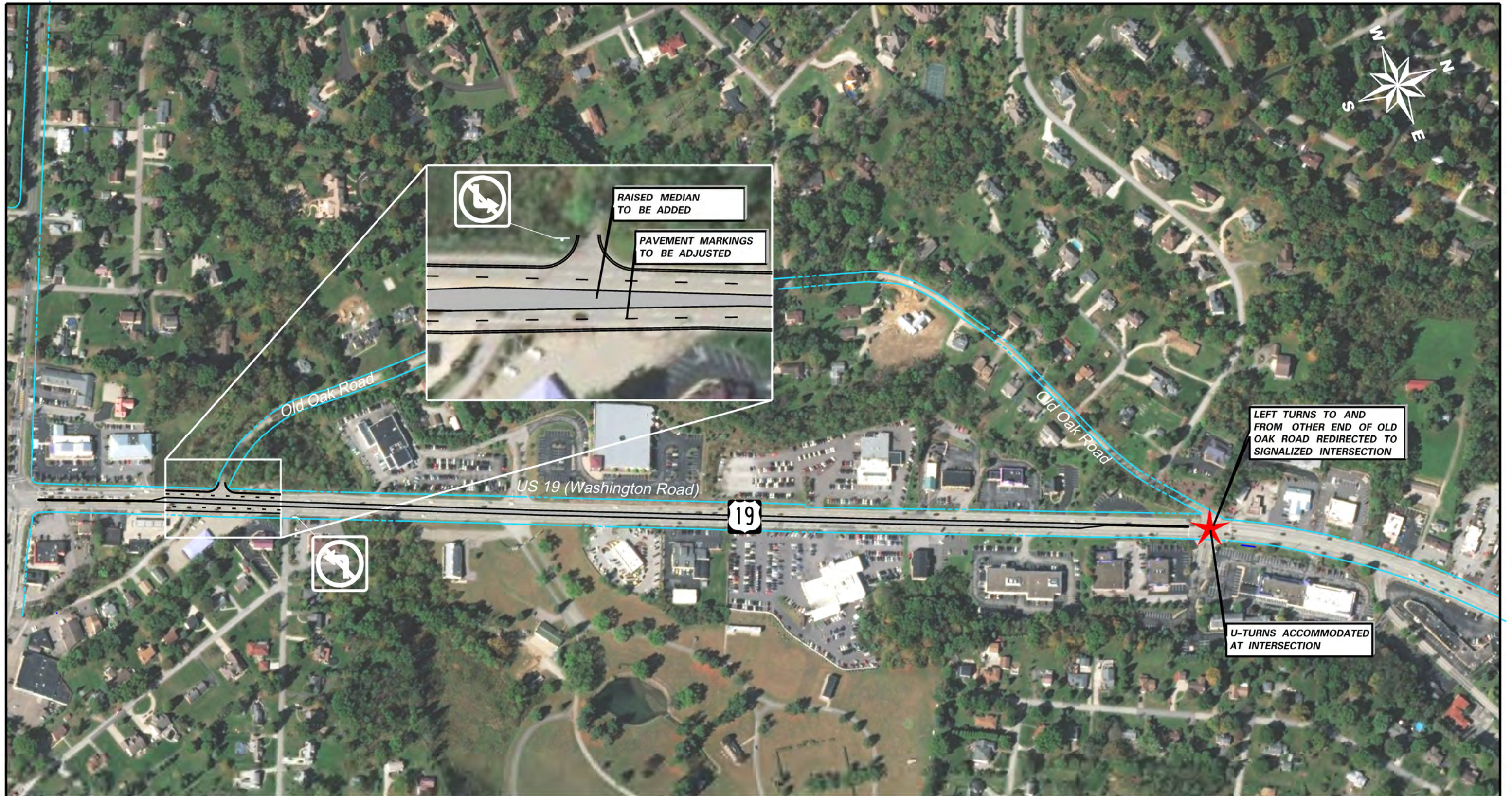
LEGEND

- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED SIDEWALK
- PROPOSED/RECONSTRUCTED BRIDGE
- PROPOSED RETAINING WALL
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 1: Washington Road (US 19) & Waterdam Road/ Waterdam Plaza Drive (0019-11)"





LEFT TURNS TO AND FROM OTHER END OF OLD OAK ROAD REDIRECTED TO SIGNALIZED INTERSECTION

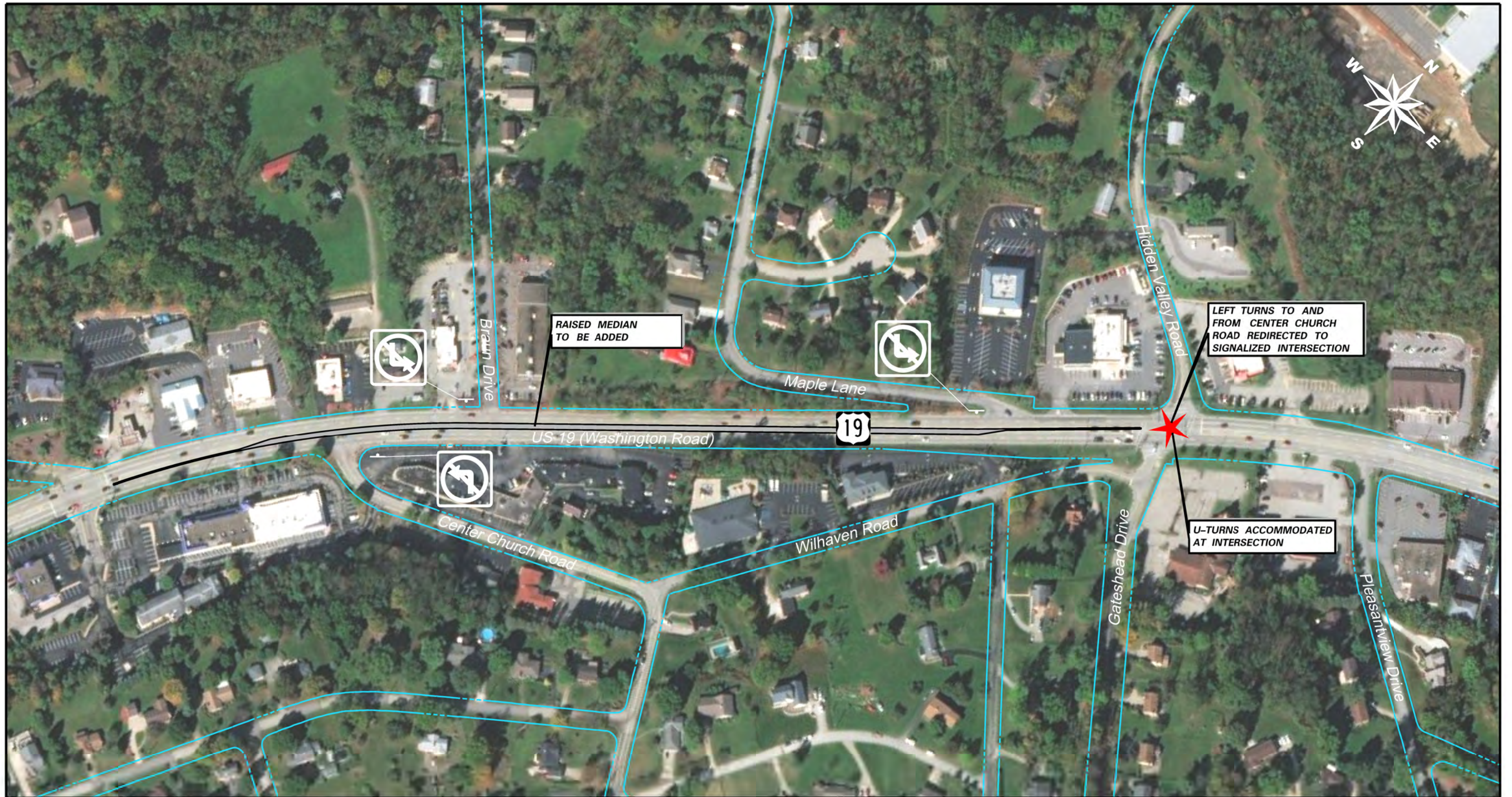
U-TURNS ACCOMMODATED AT INTERSECTION

- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY

EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 2: Washington Road (US 19) Northern Corridor Improvements"





- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY

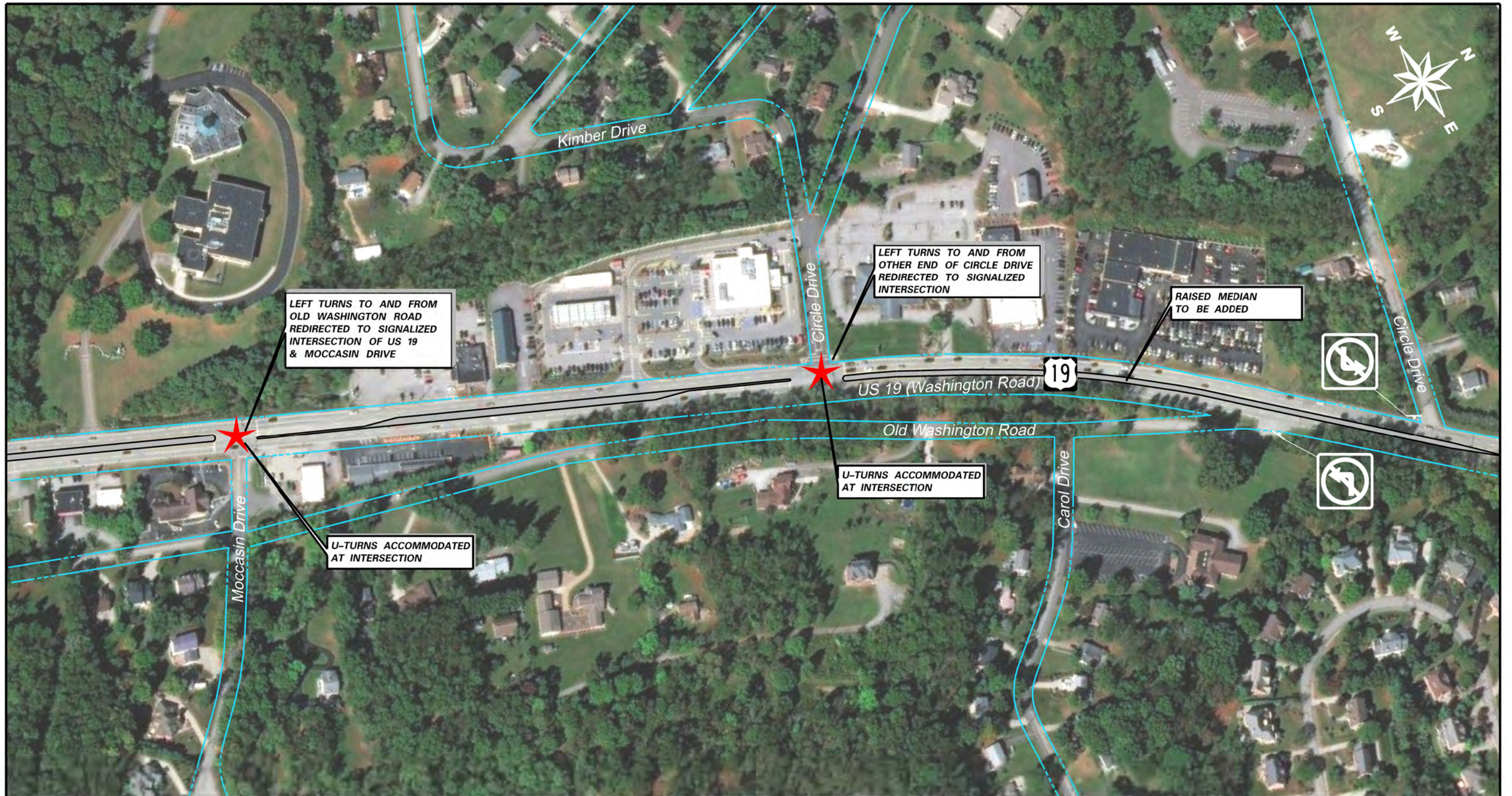
EXISTING RIGHT-OF-WAY LINE



Northern Washington County Corridor Based Transportation Plan

"Concept Location 2: Washington Road (US 19) Northern Corridor Improvements"

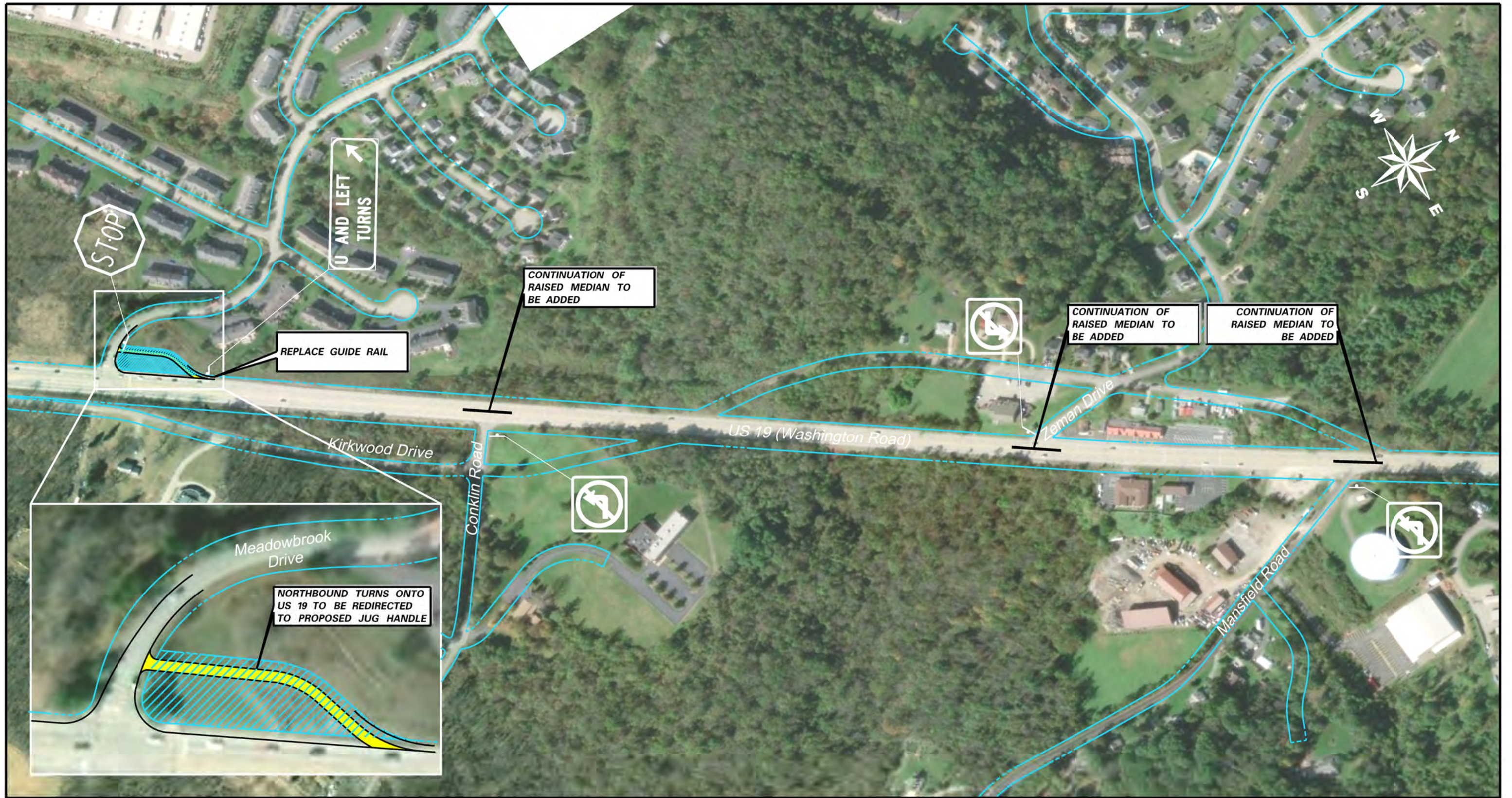




Northern Washington County Corridor Based Transportation Plan

"Concept Location 2: Washington Road (US 19) Northern Corridor Improvements"





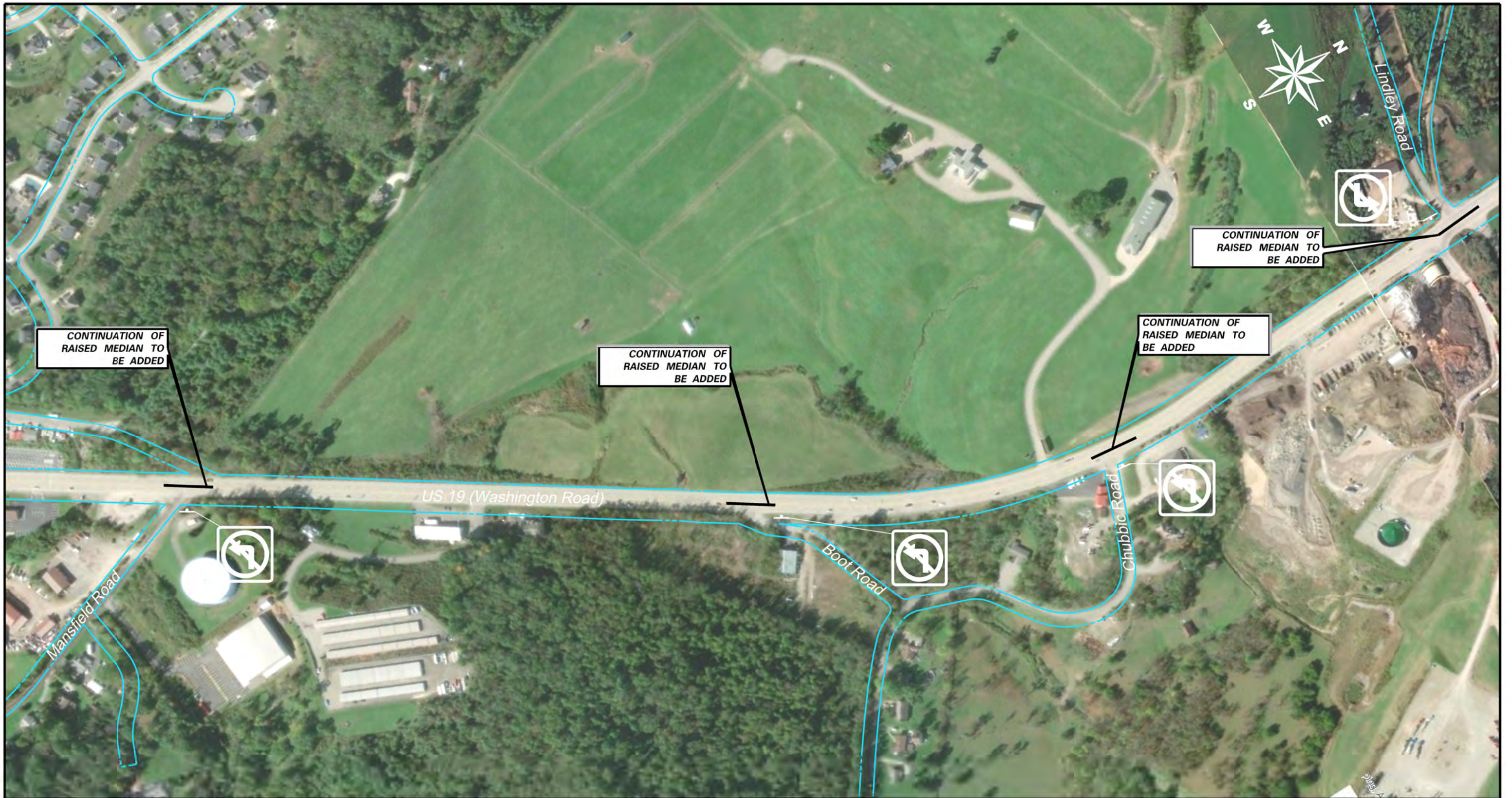
- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY

Northern Washington County Corridor Based Transportation Plan

"Concept Location 3: Washington Road (US 19) Southern Corridor Improvements (0019-0430 & 0019-0440)"



----- EXISTING RIGHT-OF-WAY LINE

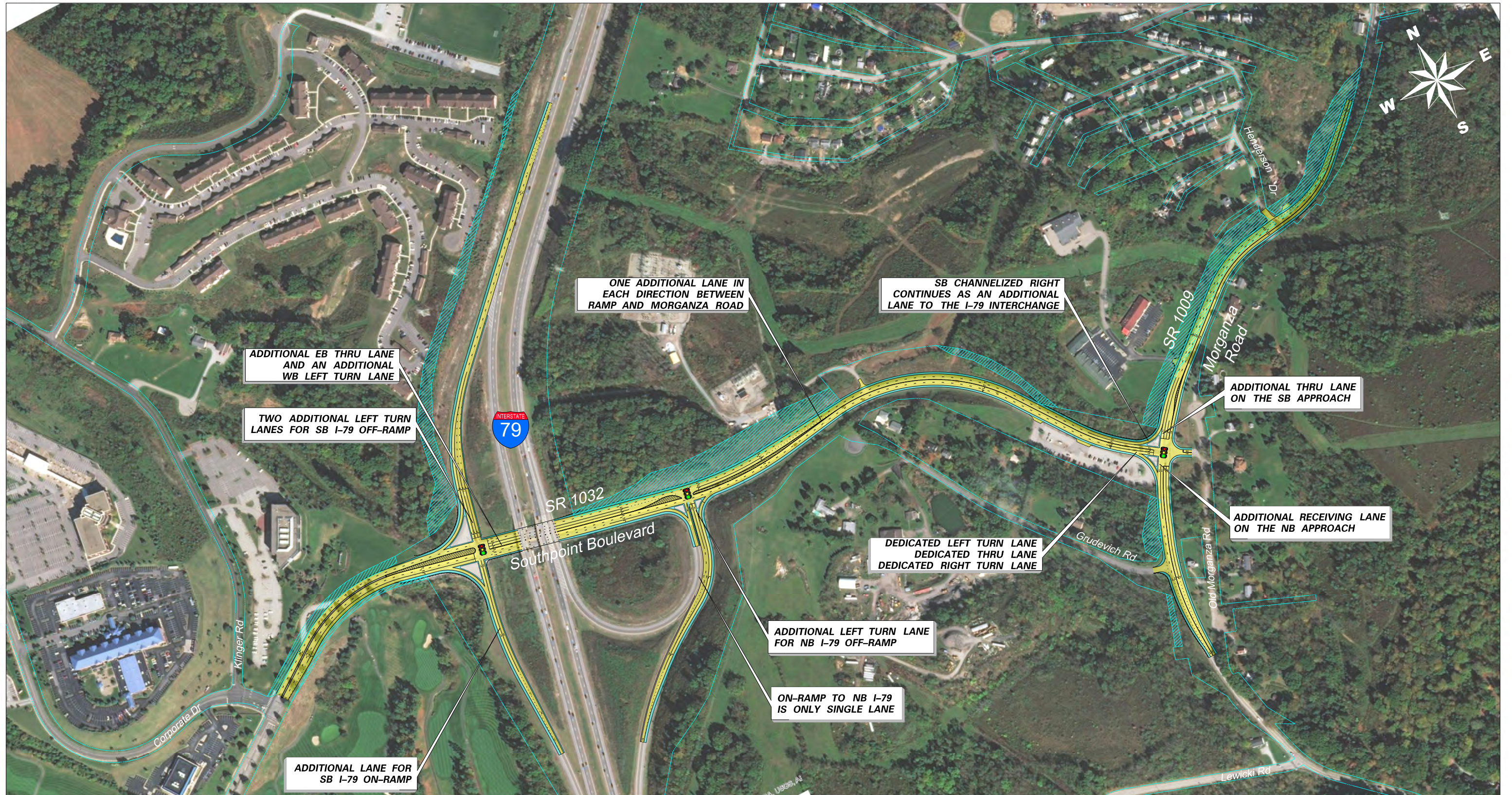


- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY
 - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 3: Washington Road (US 19) Southern Corridor Improvements (0019-0440 & 0019-0450)"





LEGEND

- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED CONCRETE ISLAND
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY LINE

- C CUT LINE
- F FILL LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 4: Southpointe Boulevard"





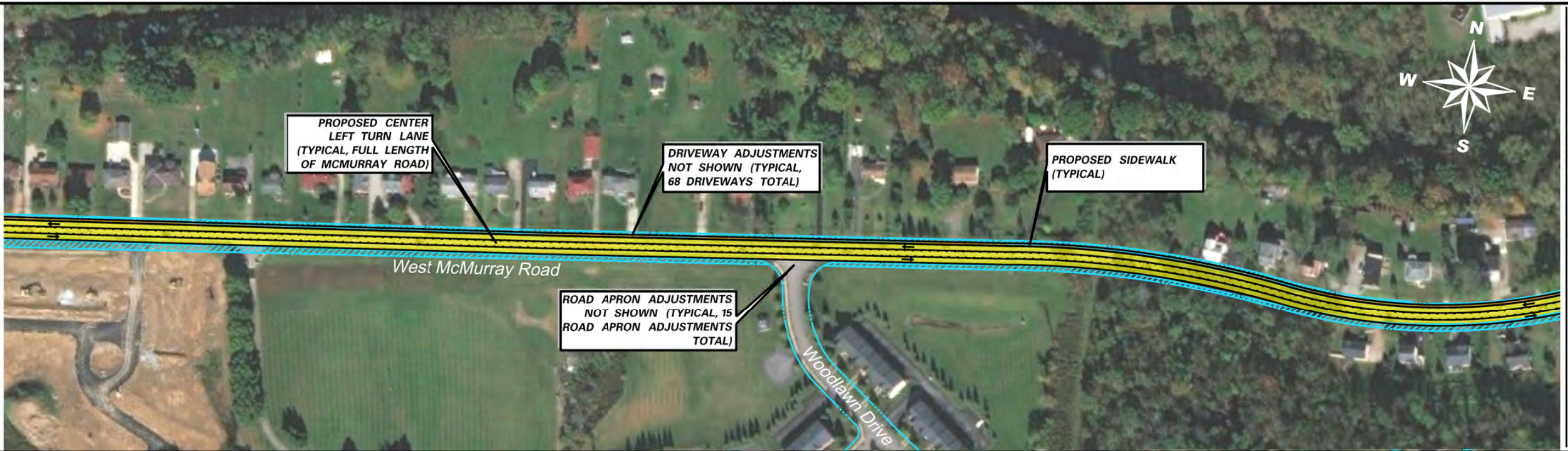
MATCHLINE SR 1009, SEE CONCEPT LOCATION 5 MCMURRAY ROAD CORRIDOR

- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY
 - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 5: Morganza Road & McMurray Road (1009-08)"



MATCHLINE SEE FIGURE 1009-08








MATCHLINE SEE BELOW

MATCHLINE SEE ABOVE



MATCHLINE SEE NEXT SHEET

LEGEND

-  PROPOSED LANE
-  PROPOSED SHOULDER
-  PROPOSED SIDEWALK
-  PROPOSED/RECONSTRUCTED BRIDGE
-  PROPOSED RIGHT-OF-WAY

 EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 5: McMurray Road Corridor Between US 19 And Morganza Road"





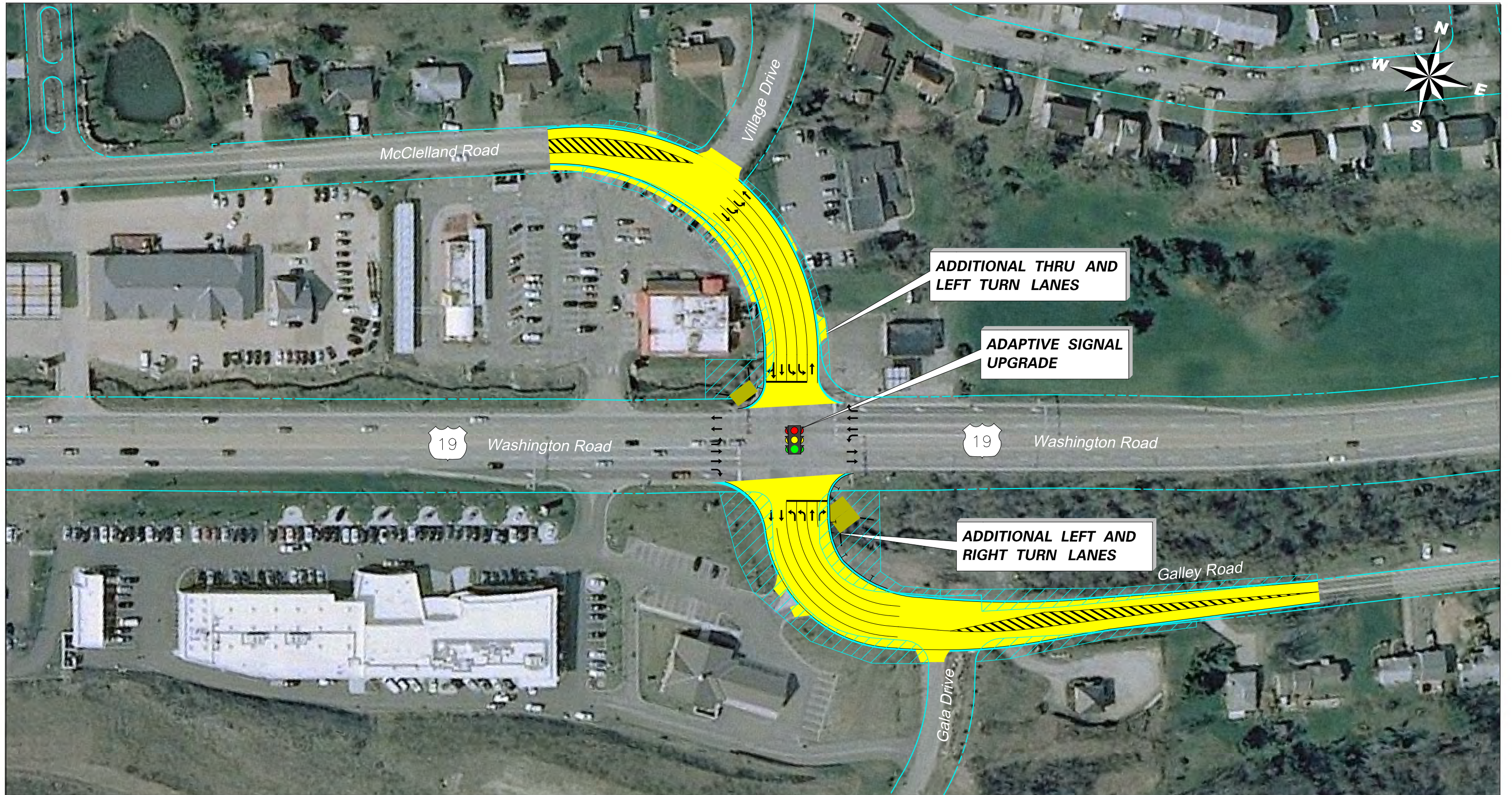
- LEGEND**
- PROPOSED LANE
 - PROPOSED SHOULDER
 - PROPOSED SIDEWALK
 - PROPOSED/RECONSTRUCTED BRIDGE
 - PROPOSED RIGHT-OF-WAY

EXISTING RIGHT-OF-WAY LINE









Northern Washington County Corridor Based Transportation Plan "Concept Location 5: McMurray Road Corridor Between US 19 And Morganza Road"





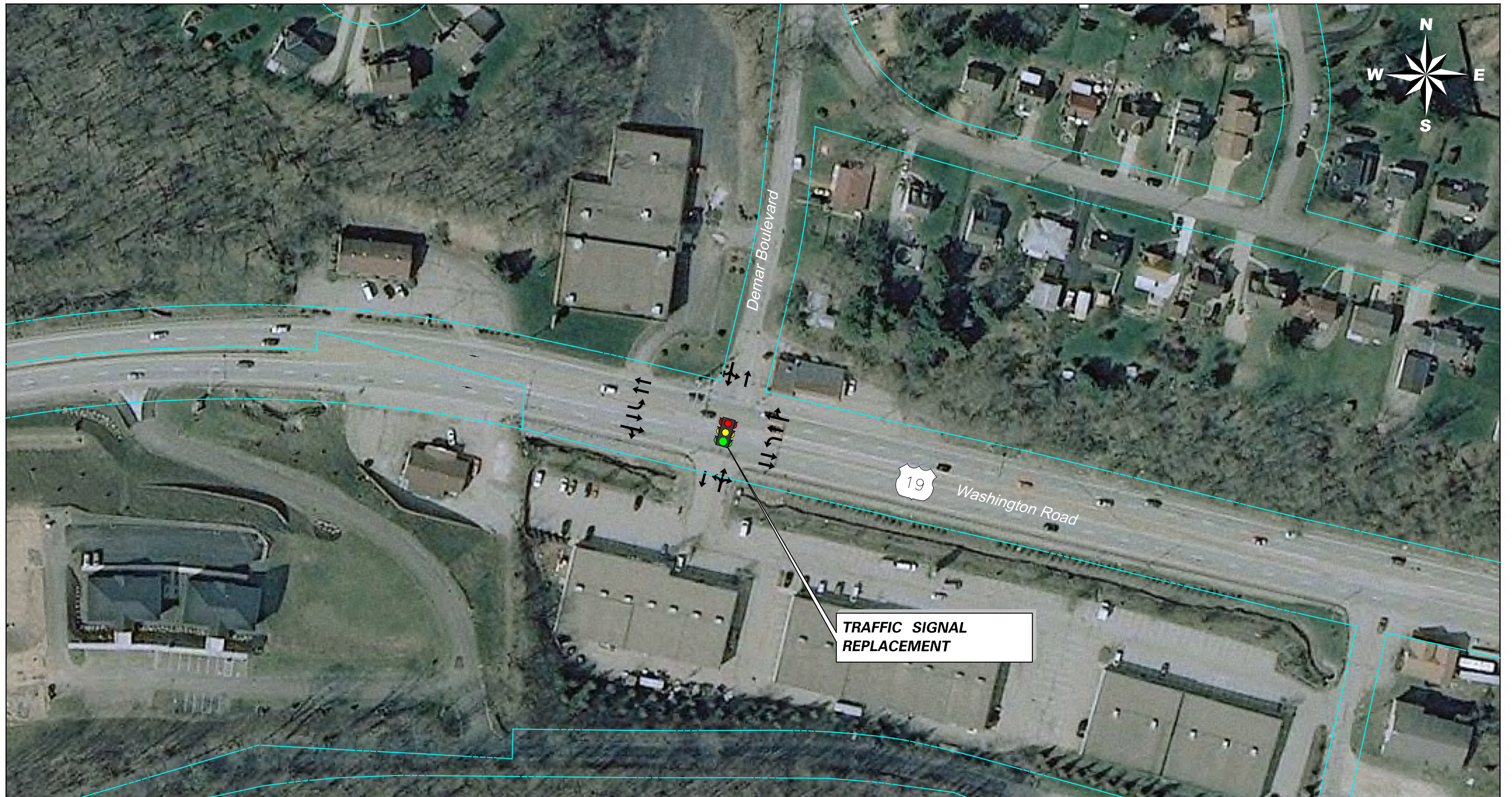
LEGEND

-  TRAFFIC FLOW DIRECTION
-  PROPOSED LANE
-  PROPOSED SHOULDER
-  PROPOSED/RECONSTRUCTED BRIDGE
-  REQUIRED RIGHT-OF-WAY
-  EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 6: Galley Rd. (SR 1023) / McClelland Rd. (SR 1023) / Washington Rd. (US 19)"





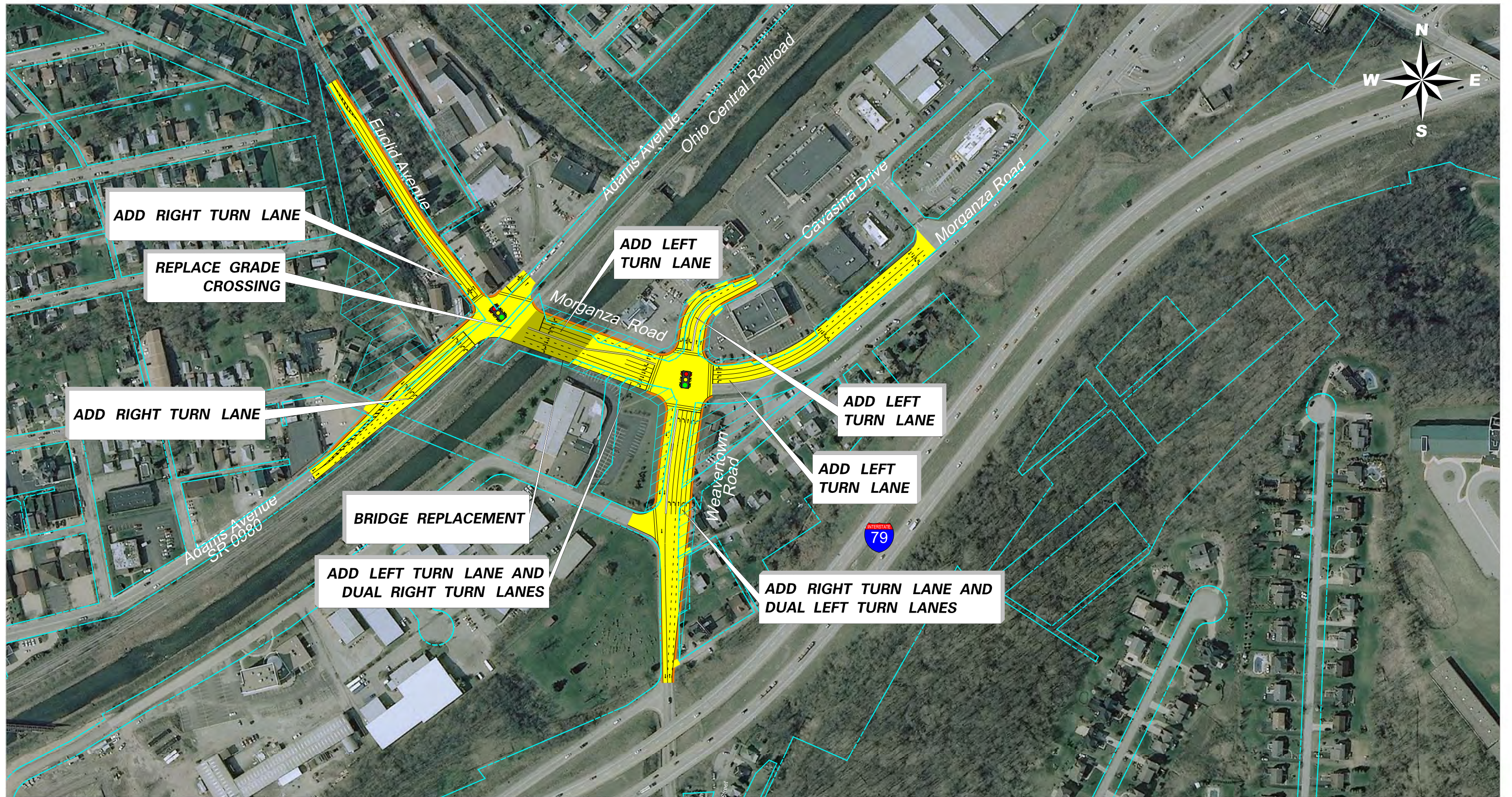
LEGEND

- TRAFFIC FLOW DIRECTION
- - - - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 6: Demar Boulevard / Washington Rd. (US 19)"





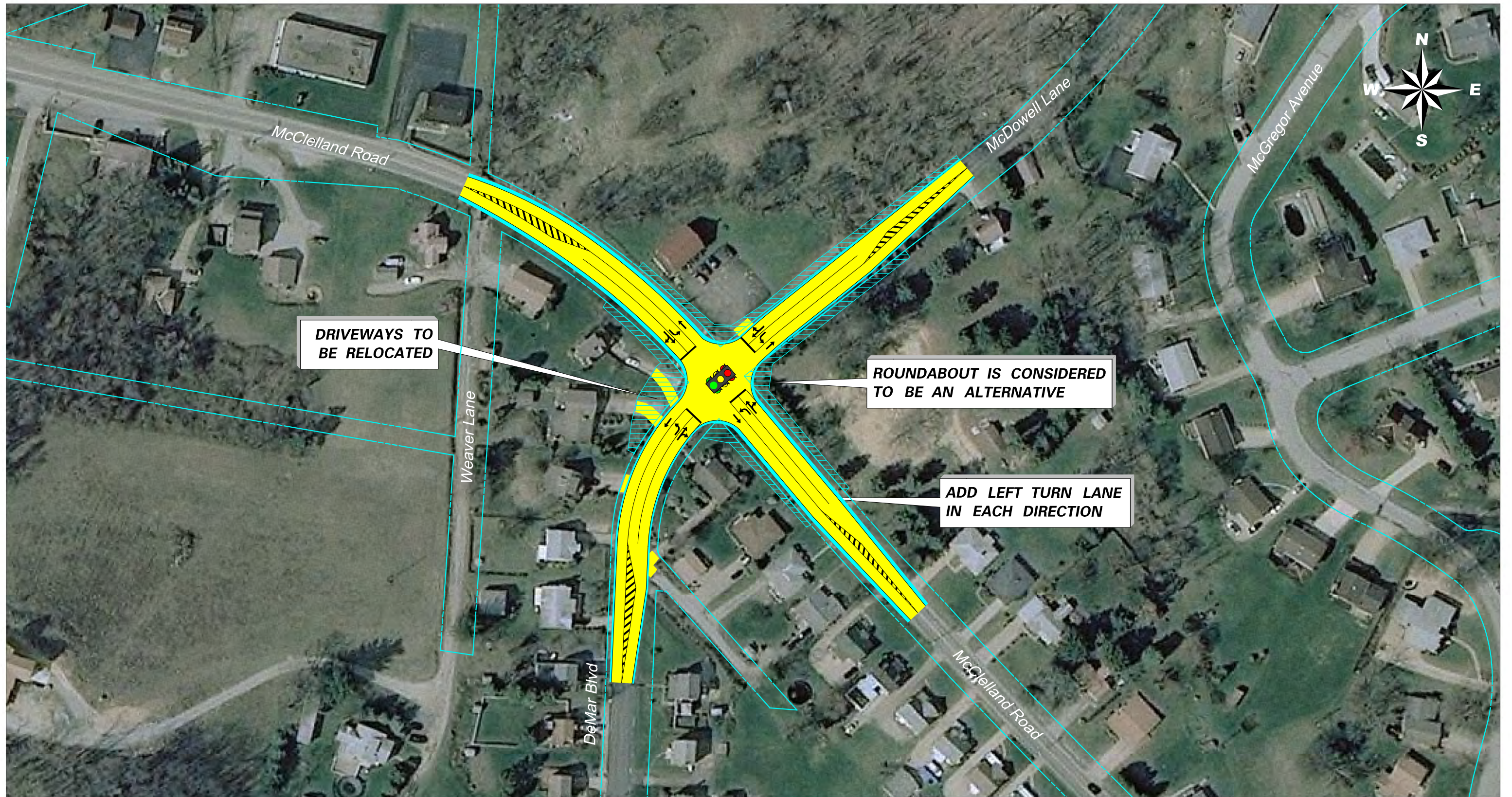
LEGEND

-  TRAFFIC FLOW DIRECTION
-  PROPOSED LANE
-  PROPOSED SIDEWALK
-  PROPOSED CONCRETE ISLAND
-  PROPOSED/RECONSTRUCTED BRIDGE
-  REQUIRED RIGHT-OF-WAY
-  EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 6: Adams Ave. / Euclid Ave. / Morganza Rd."
 "Concept Location 7: Weavertown Rd. / Cavasina Dr. / Morganza Rd."



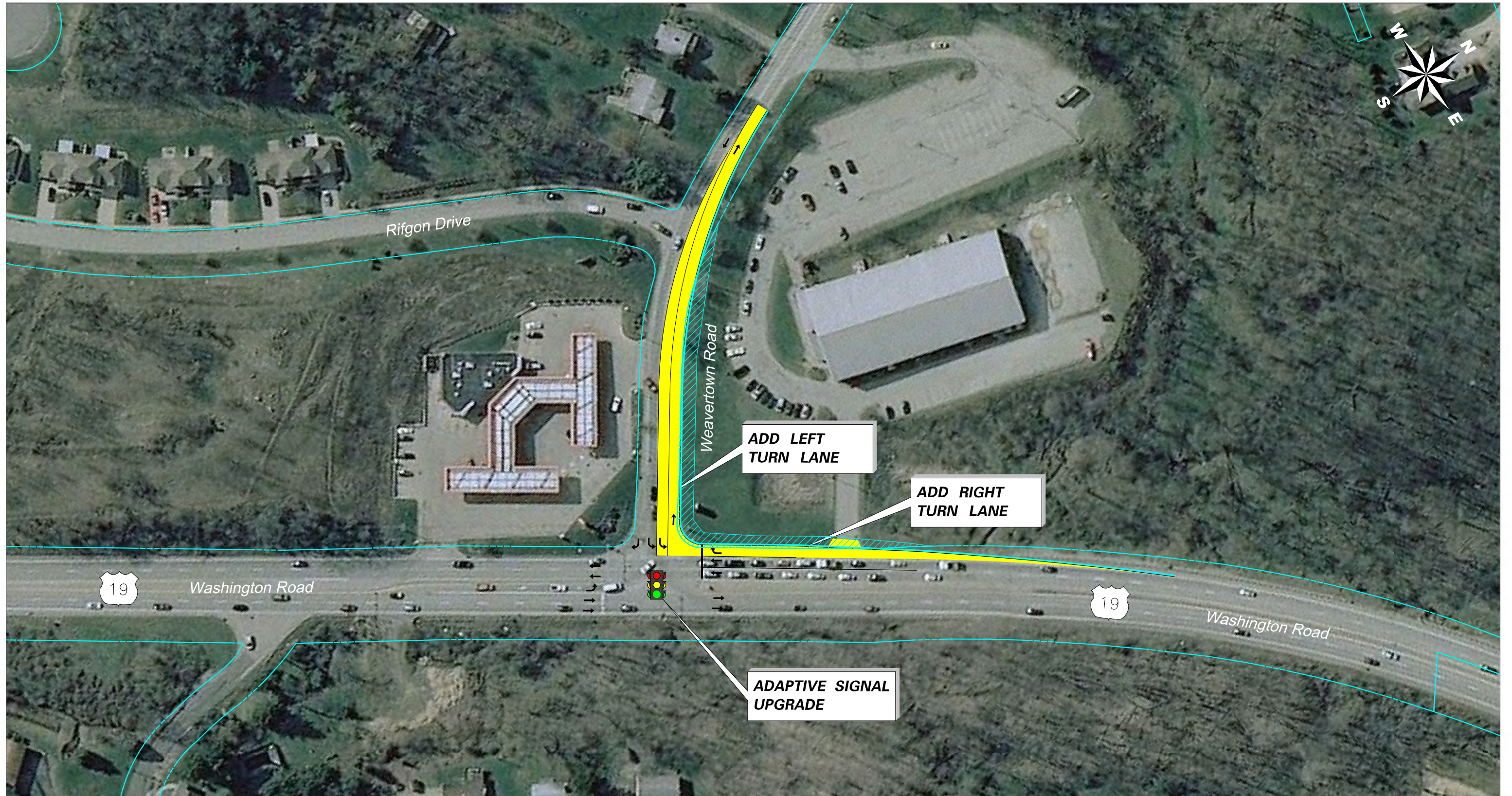


- LEGEND**
- TRAFFIC FLOW DIRECTION
 - PROPOSED LANE
 - PROPOSED SHOULDER
 - ▨ REQUIRED RIGHT-OF-WAY
 - - - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 6: McClelland Rd. (SR 1023) / McDowell Ln. / DeMar Blvd."





LEGEND

- TRAFFIC FLOW DIRECTION
- PROPOSED LANE
- PROPOSED SHOULDER
- ▨ REQUIRED RIGHT-OF-WAY
- - - EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 7: Washington Rd. (US 19) / Weavertown Rd. (SR 1025)"





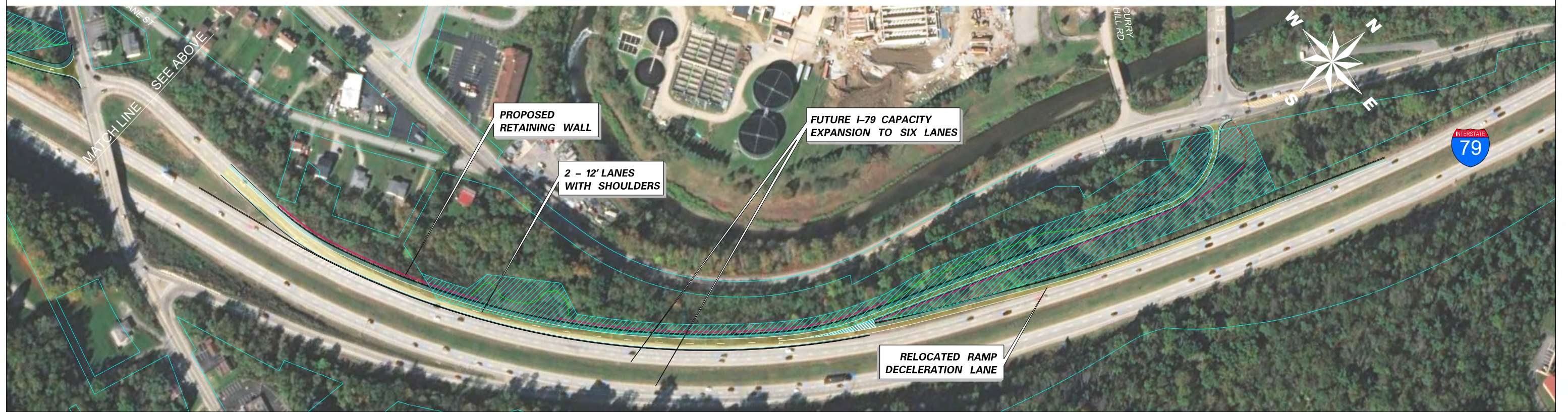
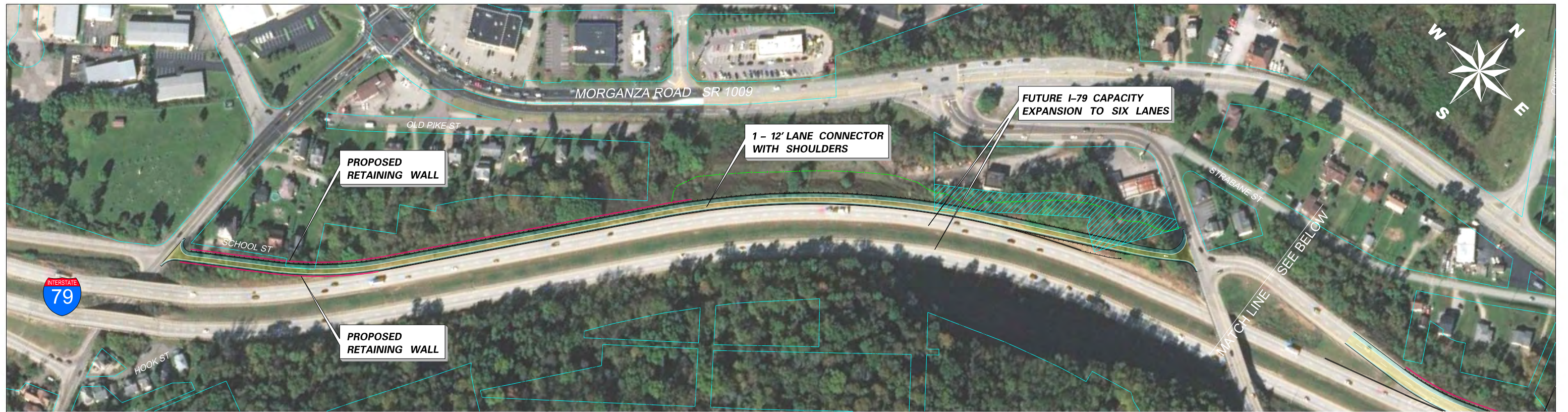
LEGEND

- TRAFFIC FLOW DIRECTION
- EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 7: Weavertown Rd. (SR 1025) / I-79 NB Exit Ramp / Hook St."

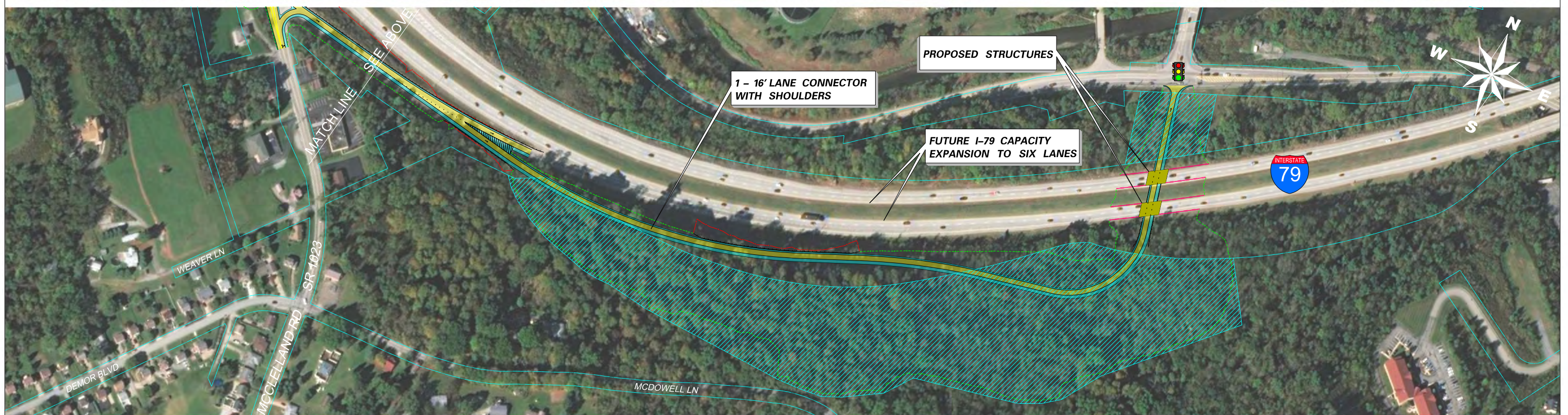
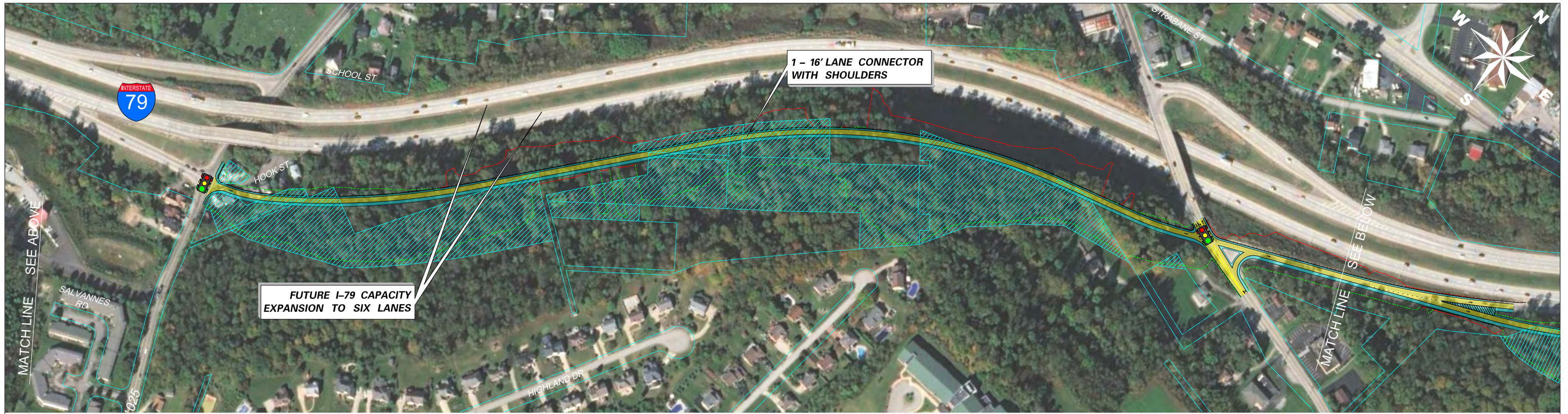




Northern Washington County Corridor Based Transportation Plan "Concept Location 6/7: Southbound Connector"

LEGEND	
	PROPOSED LANE
	PROPOSED SHOULDER
	PROPOSED CONCRETE ISLAND
	PROPOSED RIGHT-OF-WAY
	PROPOSED RETAINING WALL
	EXISTING RIGHT-OF-WAY LINE
	CUT LINE
	FILL LINE



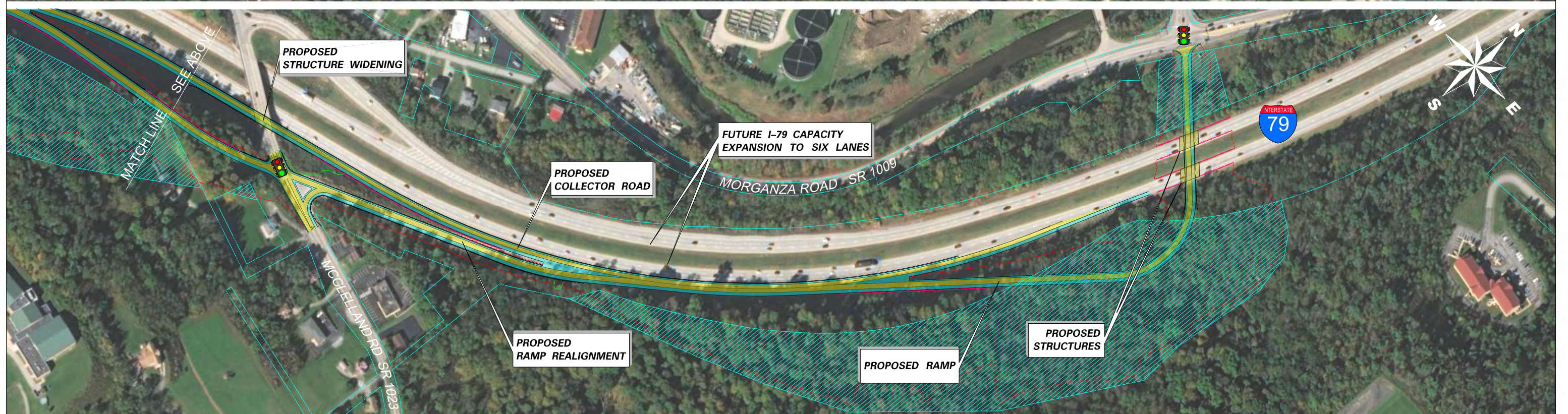
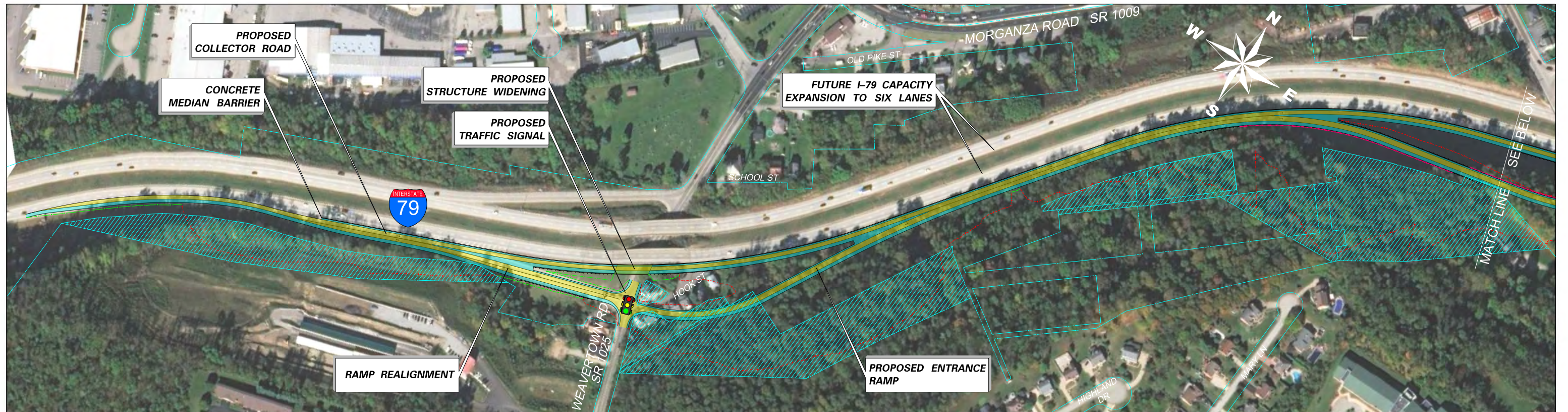


LEGEND

- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED CONCRETE ISLAND
- PROPOSED/RECONSTRUCTED BRIDGE
- PROPOSED RIGHT-OF-WAY
- PROPOSED RETAINING WALL
- EXISTING RIGHT-OF-WAY LINE
- CUT LINE
- FILL LINE

Northern Washington County Corridor Based Transportation Plan "Concept Location 6/7: Northbound Connector - Alternate 1"





LEGEND

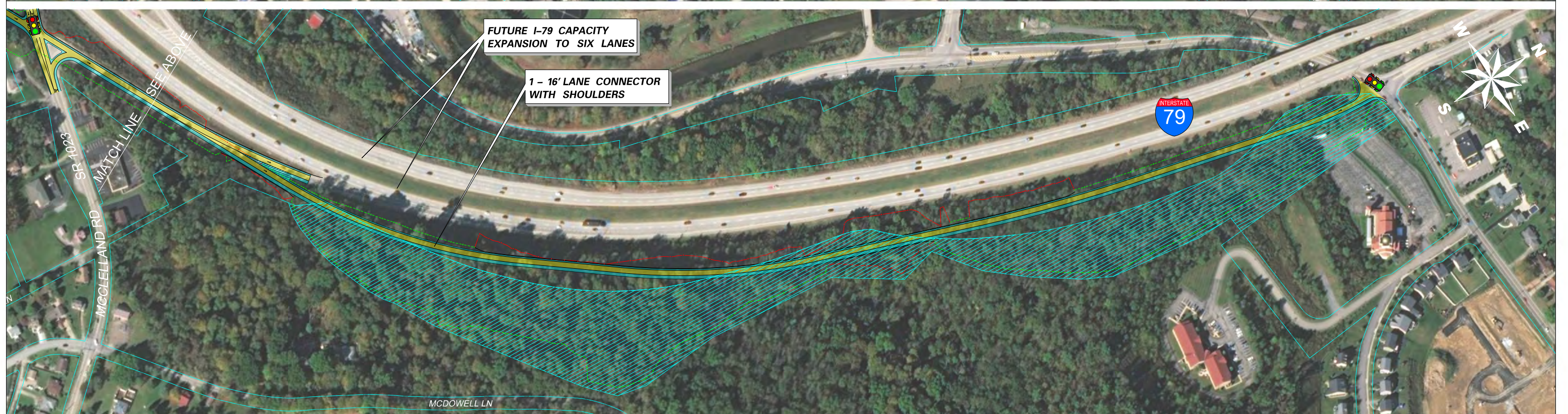
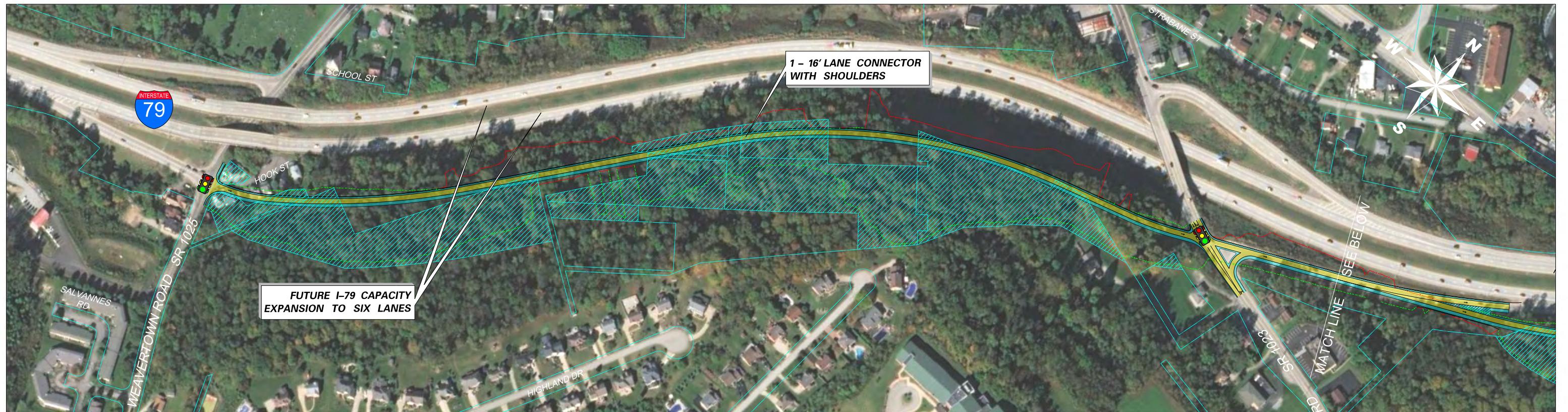
- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED CONCRETE ISLAND
- PROPOSED/RECONSTRUCTED BRIDGE
- PROPOSED RIGHT-OF-WAY
- PROPOSED RETAINING WALL
- EXISTING RIGHT-OF-WAY LINE
- CUT LINE
- FILL LINE



Northern Washington County Corridor Based Transportation Plan

"Concept Location 6/7: Northbound Connector - Alternate 2"





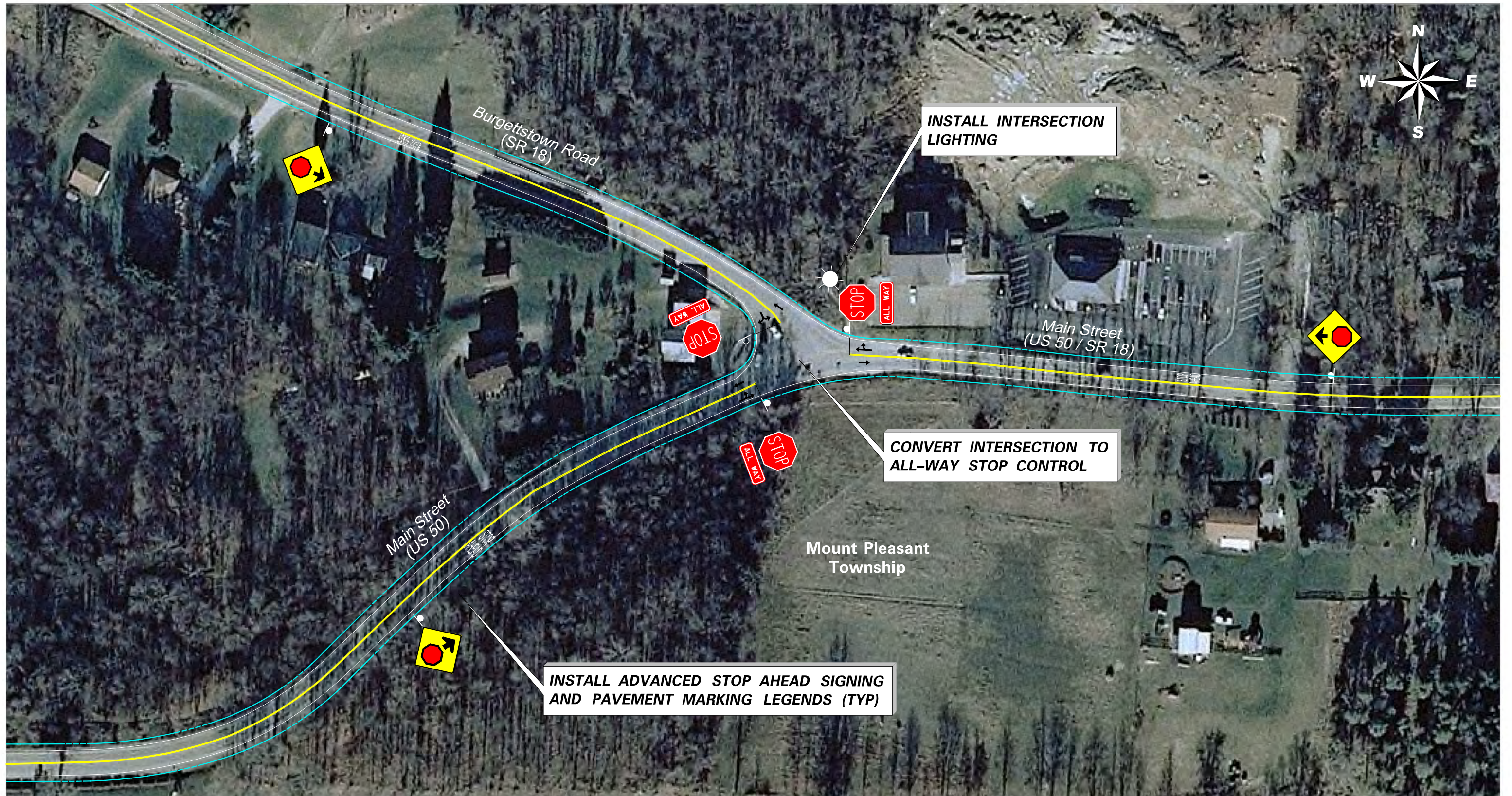
Northern Washington County Corridor Based Transportation Plan

"Concept Location 6/7: Northbound Connector - Alternate 3"

LEGEND

- PROPOSED LANE
- PROPOSED SHOULDER
- PROPOSED CONCRETE ISLAND
- PROPOSED RIGHT-OF-WAY
- PROPOSED RETAINING WALL
- EXISTING RIGHT-OF-WAY LINE
- CUT LINE
- FILL LINE





INSTALL INTERSECTION LIGHTING

CONVERT INTERSECTION TO ALL-WAY STOP CONTROL

INSTALL ADVANCED STOP AHEAD SIGNING AND PAVEMENT MARKING LEGENDS (TYP)

LEGEND

- TRAFFIC FLOW DIRECTION
- PROPOSED SIGN
- ⊥ EXISTING SIGN
- ☀ PROPOSED LUMINAIRE
- EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 8: Burgettstown Rd. (SR 18) / Main St. (SR 18/US 50)"





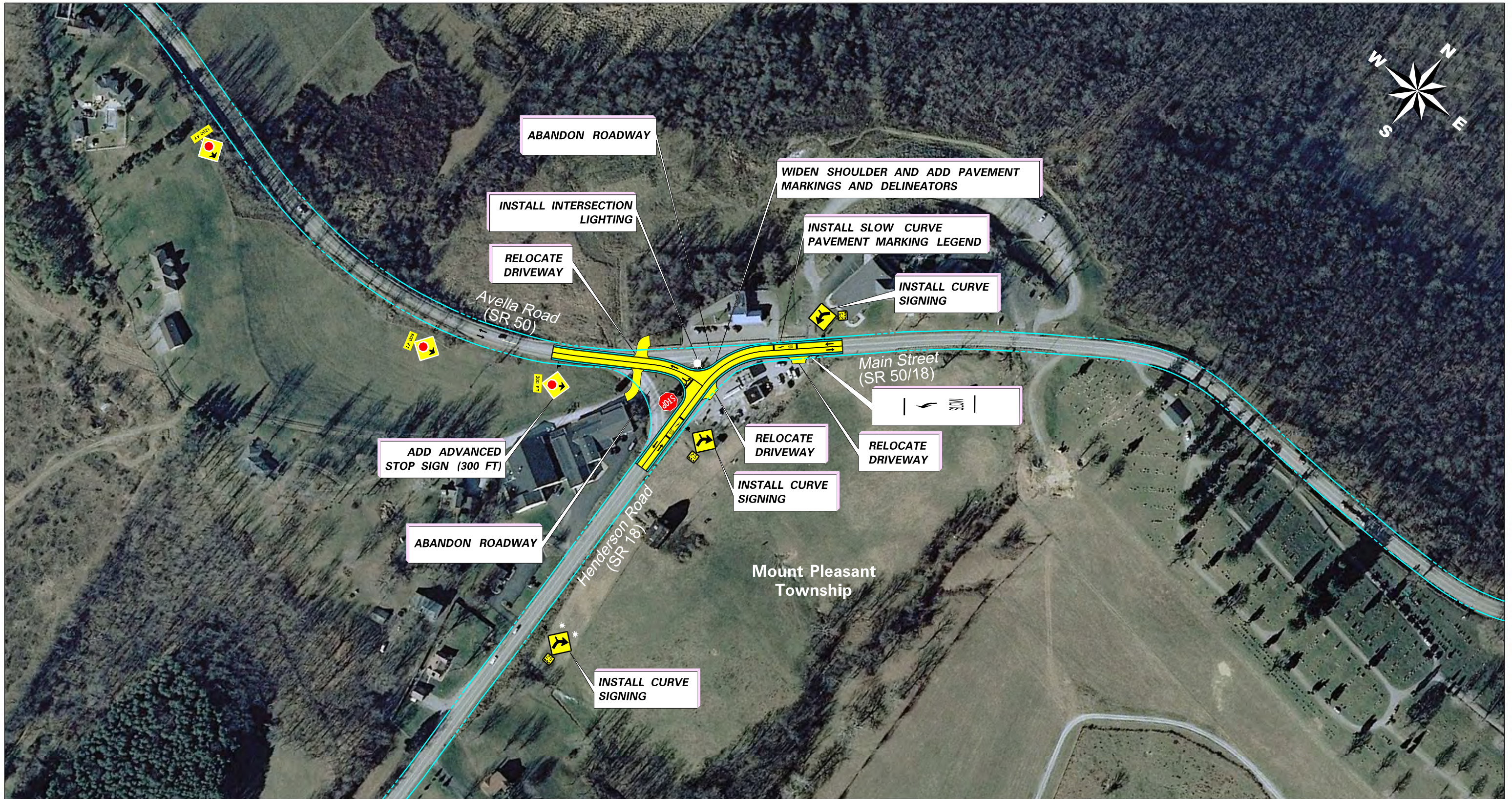
LEGEND

- TRAFFIC FLOW DIRECTION
- ▬ PROPOSED SHOULDER WIDENING
- PROPOSED SIGN
- ⊖ EXISTING SIGN
- ⊙ PROPOSED LUMINAIRE
- ⊙ PROPOSED LUMINAIRE
- EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 9: Henderson Rd. (SR 18) / Avella Rd. (SR 50)"





LEGEND

- PROPOSED LANE / DRIVEWAY
- PROPOSED SHOULDER
- PROPOSED SIGN
- EXISTING SIGN
- PROPOSED LUMINAIRE

- TRAFFIC FLOW DIRECTION
- PROPOSED LUMINAIRE
- EXISTING RIGHT-OF-WAY LINE






Northern Washington County Corridor Based Transportation Plan

"Concept Location 9: Henderson Rd. (SR 18) / Avella Rd. (SR 50)"





LEGEND

-  TRAFFIC FLOW DIRECTION
-  EXISTING SIGN
-  CUT SLOPE FOR SIGHT DISTANCE
-  REQUIRED RIGHT-OF-WAY
-  EXISTING RIGHT-OF-WAY LINE

Northern Washington County Corridor Based Transportation Plan

"Concept Location 10: SR 980 / Ohare Rd."



APPENDIX B

Funding & Cost Estimates

Concept Location Cost Estimate Summary

Concept Location	Description	Type of Improvements	Improvement Summary	Cost	Implementation
1	<u>US 19 Corridor from Old Oak Road to Waterdam Road</u>	<u>Operations/Safety</u>		\$ 8,366,800	Medium Term
	Washington Road (US 19) & McMurray Road (0019-07)	Operations/Safety	Add Lanes, Widen Road	\$ 4,840,200	Medium Term
	Washington Road (US 19) & Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)	Operations/Safety	Add Lanes, Widen Road	\$ 289,300	Short Term
	Washington Road (US19) & McDowell Lane (0019-09)	Operations/Safety	Add Lane, Driveway Adjustments	\$ 622,200	Short Term
	Washington Road (US 19) & Waterdam Road / Waterdam Plaza Drive (0019-11)	Operations/Safety	Add Lanes, Retaining Wall	\$ 2,615,100	Medium Term
2	<u>US 19 Northern Corridor</u>	<u>Safety</u>	Access Management - Add Median	\$ 2,762,100	Medium Term
	Old Oak Road	Safety	Access Management - Add Median	\$ 1,354,500	Medium Term
	Center Church Road	Safety	Access Management - Add Median	\$ 599,200	Short Term
	Circle Drive	Safety	Access Management - Add Median	\$ 808,400	Short Term
3	<u>US 19 Southern Corridor</u>	<u>Safety</u>	Access Management - Fill Median Island Gaps	\$ 259,200	Short Term
	(0019-0430 & 0019-0440)	Safety	Access Management - Fill Median Island Gaps	\$ 185,000	Short Term
	(0019-0440/0450)	Safety	Access Management - Fill Median Island Gaps	\$ 74,200	Near Term
4	<u>Southpointe Boulevard from I-79 to Morganza Road</u>	<u>Operations</u>	Add Lanes, Widen Road	\$ 16,829,300	Long Term
5	<u>McMurray Road Corridor between US 19 and Morganza Road</u>	<u>Operations</u>	Widen Road, Add Lane, Adjust Pavement Markings, Add Sidewalk on north side	\$ 10,462,900	Long Term
6	<u>McClelland Road Corridor from US 19 to Morganza Road, US 19 between McClelland Road and Weavertown Road and Morganza Road between McClelland Road and Weavertown Road</u>	<u>Operations/Safety</u>		\$ 8,100,600	Medium Term
	Galley Rd (SR 1023)/ McClelland Rd (SR 1023)/ Washington Rd (US 19)	Operations	Add Lanes, Widen Road	\$ 2,956,900	Medium Term
	DeMar Boulevard /Washington Rd (US 19)	Safety	Replace Signal	\$ 464,100	Short Term
	Adams Ave / Euclid Ave / Morganza Rd	Operations/Safety	Add Lanes, Replace Bridge	\$ 3,376,500	Medium Term
	McClelland Rd (SR 1023) / McDowell Ln / DeMar Blvd	Operations	Add Lanes, Move Driveways (Roundabout could be considered)	\$ 1,303,100	Medium Term
7	<u>Weavertown Road Corridor from US 19 to Morganza Road</u>	<u>Operations</u>		\$ 18,210,400	Long Term
	Weavertown Rd / Cavasina Dr / Morganza Rd	Operations	Add Lanes, Replace Bridge	\$ 16,694,600	Long Term
	Washington Rd (US 19) / Weavertown Rd (SR 1025)	Operations	Add Lanes, Upgrade Signal	\$ 1,092,300	Medium Term
	Weavertown Rd (SR 1025) / I-79 NB Exit Ramp / Hook St	Operations	Add Signal	\$ 423,500	Short Term
6/7	<u>New Connector Roads</u>	<u>Operations</u>			Long term
	Southbound Connector	Operations	New connector: Connects Southpointe Blvd to McClelland Rd and Weavertown Rd	\$ 20,783,000	Long Term
	Alternative 1: Northbound Connector	Operations	New connector: Connects Southpointe Blvd to McClelland Rd and Weavertown Rd	\$ 46,867,500	Long Term
	Alternative 2: Northbound Connector	Operations	New connector: Connects Southpointe Blvd to McClelland Rd and Weavertown Rd	\$ 64,764,600	Long Term
	Alternative 3: Northbound Connector	Operations	New connector: Connects Morganza Rd to McClelland Rd and Weavertown Rd	\$ 31,447,700	Long Term
8	<u>SR 18 (Burgettstown Road) and SR 50 (Hickory Road)</u>	<u>Operations/Safety</u>	Add Lighting, Install Additional Stop Signage	\$ 25,200	Near Term
9	<u>SR 18 (Henderson Road) and SR 50 (Avella Road)</u>	<u>Safety</u>		\$ 488,100	Short Term
	Near Term Alternative	Safety	Add Lighting, Widen Shoulder, Install Signage	\$ 36,300	Near Term
	Longer Term Alternative	Safety	Reconfigure intersection	\$ 451,800	Short Term
10	<u>SR 980 and OHare Road</u>	<u>Safety</u>	Grading, Replace Stop Signage	\$ 36,700	Near Term

Concept Location Potential Funding Sources

Concept Location	Description	Cost	Implementation	Potential Funding Program (s)
1	<u>US 19 Corridor from Old Oak Road to Waterdam Road</u>	\$ 8,366,800	Medium Term	
	Washington Road (US 19) & McMurray Road (0019-07)	\$ 4,840,200	Medium Term	B, C, L, M, O, P, Q
	Washington Road (US 19) & Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)	\$ 289,300	Short Term	B, C, E, N, P, Q, T
	Washington Road (US19) & McDowell Lane (0019-09)	\$ 622,200	Short Term	B, C, D, E, N, Q, T
	Washington Road (US 19) & Waterdam Road / Waterdam Plaza Drive (0019-11)	\$ 2,615,100	Medium Term	B, C, L, M, O, P, Q
2	<u>US 19 Northern Corridor</u>	\$ 2,762,100	Medium Term	
	Old Oak Road	\$ 1,354,500	Medium Term	M, O
	Center Church Road	\$ 599,200	Short Term	A, M, O
	Circle Drive	\$ 808,400	Short Term	A, M, O
3	<u>US 19 Southern Corridor</u>	\$ 259,200	Short Term	
	(0019-0430 & 0019-0440)	\$ 185,000	Short Term	A, M, O
	(0019-0440/0450)	\$ 74,200	Near Term	A, M, O
4	<u>Southpointe Boulevard from I-79 to Morganza Road</u>	\$ 16,829,300	Long Term	M, R, S
5	<u>McMurray Road Corridor between US 19 and Morganza Road</u>	\$ 10,462,900	Long Term	D, E, H, I, L, M, R, S
6	<u>McClelland Road Corridor from US 19 to Morganza Road, US 19 between McClelland Road and Weavertown Road and Morganza Road between McClelland Road and Weavertown Road</u>	\$ 8,100,600	Medium Term	
	Galley Rd (SR 1023)/ McClelland Rd (SR 1023)/ Washington Rd (US 19)	\$ 2,956,900	Medium Term	B, C, M
	DeMar Boulevard /Washington Rd (US 19)	\$ 464,100	Short Term	B, C
	Adams Ave / Euclid Ave / Morganza Rd	\$ 3,376,500	Medium Term	L, M, O, P
	McClelland Rd (SR 1023) / McDowell Ln / DeMar Blvd	\$ 1,303,100	Medium Term	L, M, O, P
7	<u>Weavertown Road Corridor from US 19 to Morganza Road</u>	\$ 18,210,400	Long Term	
	Weavertown Rd / Cavasina Dr / Morganza Rd	\$ 16,694,600	Long Term	M, R, S
	Washington Rd (US 19) / Weavertown Rd (SR 1025)	\$ 1,092,300	Medium Term	B, C, M, P
	Weavertown Rd (SR 1025) / I-79 NB Exit Ramp / Hook St	\$ 423,500	Short Term	A, B, C, M
6/7	<u>New Connector Roads</u>		Long term	
	Southbound Connector	\$ 20,783,000	Long Term	M, R, S
	Alternative 1: Northbound Connector	\$ 46,867,500	Long Term	M, R, S
	Alternative 2: Northbound Connector	\$ 64,764,600	Long Term	M, R, S
	Alternative 3: Northbound Connector	\$ 31,447,700	Long Term	M, R, S
8	<u>SR 18 (Burgettstown Road) and SR 50 (Hickory Road)</u>	\$ 25,200	Near Term	A, N
9	<u>SR 18 (Henderson Road) and SR 50 (Avella Road)</u>	\$ 488,100	Short Term	
	Near Term Alternative	\$ 36,300	Near Term	A, N
	Longer Term Alternative	\$ 451,800	Short Term	M, O
10	<u>SR 980 and OHare Road</u>	\$ 36,700	Near Term	A, N

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 1: Washington Road (US 19) & McMurray Road (0019-07)**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$10,000	\$10,000
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	5130	\$30	\$153,900
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	230	\$35	\$8,050
SY	SEEDING AND MULCHING	2030	\$5	\$10,150
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT	15530	\$85	\$1,320,050
SY	SUBBASE	15530	\$30	\$465,900
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT	400	\$75	\$30,000
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	440	\$150	\$66,000
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB	3640	\$50	\$182,000
SY	CEMENT CONCRETE SIDEWALK	60	\$150	\$8,961
EACH	HIGHWAY LIGHTING	16	\$10,000	\$160,000
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED	216	\$45	\$9,720
SF	FABRICATED SIGN - GROUND MOUNTED		\$100	
LF	4" PAVEMENT MARKINGS		\$1	
LF	6" PAVEMENT MARKINGS	11990	\$2	\$23,980
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS	444	\$8	\$3,552
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$101,600	\$101,600
LS	EROSION AND SEDIMENTATION CONTROLS		\$25,400	\$25,400
LS	DRAINAGE		\$63,500	\$63,500
LS	MOBILIZATION		\$101,600	\$101,550
				<hr/>
			Total	\$2,994,313
			Escalation @ 3%/year Through 2020	\$277,660.00
			Subtotal	\$3,271,973.25
				<hr/>
			Contingency @ 20%	\$654,400
			Total Construction Cost	\$3,926,373
				<hr/>
			Construction Oversight @ 12%	\$471,200
			Subtotal	\$4,397,573
				<hr/>
			Engineering Design	\$253,900
			Utility Relocation	\$127,000
			Right-of-Way Acquisition	\$61,700
				<hr/>
			Total Cost	\$4,840,200

**SPC Northern Washington County Transportation Plan
Alternative Analysis**

Conceptual Construction Cost Estimate

Concept Location 1: Washington Road (US 19) & Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$5,000	\$5,000
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	70	\$30	\$2,047
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	60	\$35	\$1,882
SY	SEEDING AND MULCHING	490	\$5	\$2,444
SY	MILL/OVERLAY	1410	\$25	\$35,010
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)		\$85	
SY	SUBBASE (SR 79 NEW RAMP)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	210	\$75	\$15,508
SY	SUBBASE (SIDE ROADS)	210	\$20	\$4,136
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	20	\$150	\$1,853
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED		\$100	
LF	4" PAVEMENT MARKINGS	1550	\$1	\$1,551
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS	130	\$8	\$1,040
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL	1	\$100,000	\$100,000
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$6,900	\$6,900
LS	EROSION AND SEDIMENTATION CONTROLS		\$1,800	\$1,800
LS	DRAINAGE		\$4,300	\$4,300
LS	MOBILIZATION		\$1,800	\$1,705

Total		\$185,176
Escalation @ 3%/year Through 2020		\$17,180.00
Subtotal		\$202,356.26
Contingency @ 20%		\$40,500
Total Construction Cost		\$242,856
Construction Oversight @ 12%		\$29,200
Subtotal		\$272,056
Engineering Design		\$8,600
Utility Relocation		\$8,600
Right-of-Way Acquisition		---
Total Cost		\$289,300

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 1: Washington Road (US19) & McDowell Lane (0019-09)**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$10,000	\$10,000
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	560	\$30	\$16,800
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	60	\$35	\$2,100
SY	SEEDING AND MULCHING	540	\$5	\$2,700
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)		\$85	
SY	SUBBASE (SR 79 NEW RAMP)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	1690	\$75	\$126,750
SY	SUBBASE (SIDE ROADS)	1690	\$20	\$33,800
SY	DRIVEWAY ADJUSTMENT	140	\$75	\$10,500
LF	GUIDE RAIL	80	\$25	\$2,000
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	1	\$3,000	\$3,000
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN		\$150	
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB	796	\$50	\$39,800
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED		\$100	
LF	4" PAVEMENT MARKINGS	1800	\$1	\$1,800
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS	76	\$8	\$608
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL	1	\$100,000	\$100,000
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$14,000	\$14,000
LS	EROSION AND SEDIMENTATION CONTROLS		\$3,500	\$3,500
LS	DRAINAGE		\$8,800	\$8,800
LS	MOBILIZATION		\$8,800	\$8,733

Total		\$384,891
Escalation @ 3%/year Through 2020		\$35,690.00
Subtotal		\$420,581.04
Contingency @ 20%		\$84,200
Total Construction Cost		\$504,781
Construction Oversight @ 12%		\$60,600
Subtotal		\$565,381
Engineering Design		\$35,000
Utility Relocation		\$17,500
Right-of-Way Acquisition		\$4,300
Total Cost		\$622,200

**SPC Northern Washington County Transportation Plan
Alternative Analysis**

Conceptual Construction Cost Estimate

Concept Location 1: Washington Road (US 19) & Waterdam Road / Waterdam Plaza Drive (0019-11)

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$5,000	\$5,000
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	2980	\$30	\$89,400
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	140	\$35	\$4,900
SY	SEEDING AND MULCHING	1210	\$5	\$6,050
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT	8930	\$85	\$759,050
SY	SUBBASE	8930	\$30	\$267,900
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	390	\$150	\$58,500
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING	1	\$10,000	\$10,000
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED		\$100	
LF	4" PAVEMENT MARKINGS		\$1	
LF	6" PAVEMENT MARKINGS	6110	\$2	\$12,220
LF	8" PAVEMENT MARKINGS	406	\$2	\$812
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS	201	\$8	\$1,604
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT	250	\$300	\$75,000
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$55,200	\$55,200
LS	EROSION AND SEDIMENTATION CONTROLS		\$13,800	\$13,800
LS	DRAINAGE		\$34,500	\$34,500
LS	MOBILIZATION		\$34,500	\$34,453

Total		\$1,678,389
Escalation @	3%/year Through 2020	\$155,640.00
Subtotal		\$1,834,028.65
Contingency @	20%	\$366,900
Total Construction Cost		\$2,200,929
Construction Oversight @	12%	\$264,200
Subtotal		\$2,465,129
Engineering Design		\$69,000
Utility Relocation		\$69,000
Right-of-Way Acquisition		\$11,900
Total Cost		\$2,615,100

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 2: US 19 Northern Corridor Improvements - Old Oak Road**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING			
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	1760	\$30	\$52,800
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE		\$35	
SY	SEEDING AND MULCHING		\$5	
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT		\$85	
SY	SUBBASE		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	5320	\$150	\$798,000
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED	18	\$100	\$1,800
LF	4" PAVEMENT MARKINGS	6000	\$1	\$6,000
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS		\$8	
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$17,200	\$17,200
LS	EROSION AND SEDIMENTATION CONTROLS		\$8,600	\$8,600
LS	DRAINAGE			
LS	MOBILIZATION		\$8,600	\$8,574
				Total
				\$892,974
				Escalation @ r Through 2020
				\$82,810.00
				Subtotal
				\$975,783.66
				Contingency @ 20%
				\$195,200
				Total Construction Cost
				\$1,170,984
				Construction Oversight @ 12%
				\$140,600
				Subtotal
				\$1,311,584
				Engineering Design
				\$42,900
				Utility Relocation

				Right-of-Way Acquisition

				Total Cost
				\$1,354,500

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 2: US 19 Northern Corridor Improvements - Center Church Road**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING			
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	770	\$30	\$23,100
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE		\$35	
SY	SEEDING AND MULCHING		\$5	
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT		\$85	
SY	SUBBASE		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	2330	\$150	\$349,500
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED	27	\$100	\$2,700
LF	4" PAVEMENT MARKINGS	4400	\$1	\$4,400
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS		\$8	
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$7,600	\$7,600
LS	EROSION AND SEDIMENTATION CONTROLS		\$3,800	\$3,800
LS	DRAINAGE			
LS	MOBILIZATION		\$3,800	\$3,785
Total				\$394,885
Escalation @ r Through 2020				\$36,620.00
Subtotal				\$431,504.59
Contingency @ 20%				\$86,400
Total Construction Cost				\$517,905
Construction Oversight @ 12%				\$62,200
Subtotal				\$580,105
Engineering Design				\$19,000
Utility Relocation				---
Right-of-Way Acquisition				---
Total Cost				\$599,200

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 2: US 19 Northern Corridor Improvements - Cricle Drive**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING			
CY	CLASS 1 EXCAVATION		\$15	
CY	CLASS 1B EXCAVATION	1060	\$30	\$31,800
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE		\$35	
SY	SEEDING AND MULCHING		\$5	
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT		\$85	
SY	SUBBASE		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL		\$25	
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS		\$3,000	
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN	3190	\$150	\$478,500
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED	18	\$100	\$1,800
LF	4" PAVEMENT MARKINGS	4960	\$1	\$4,960
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS		\$8	
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$10,400	\$10,400
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE			
LS	MOBILIZATION		\$5,200	\$5,167
Total				\$532,627
Escalation @ r Through 2020				\$49,390.00
Subtotal				\$582,016.99
Contingency @ 20%				\$116,500
Total Construction Cost				\$698,517
Construction Oversight @ 12%				\$83,900
Subtotal				\$782,417
Engineering Design				\$25,900
Utility Relocation				---
Right-of-Way Acquisition				---
Total Cost				\$808,400

**SPC Northern Washington County Transportation Plan
Alternative Analysis**

Conceptual Construction Cost Estimate

Concept Location 3: Washington Road (US 19) Southern Corridor Improvements (0019-0430 & 0019-0440)

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$2,000	\$2,000
CY	CLASS 1 EXCAVATION	130	\$15	\$1,950
CY	CLASS 1B EXCAVATION	100	\$30	\$3,000
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	190	\$35	\$6,650
SY	SEEDING AND MULCHING	1670	\$5	\$8,350
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT		\$85	
SY	SUBBASE		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	370	\$75	\$27,750
SY	SUBBASE (SIDE ROADS)	370	\$20	\$7,400
SY	DRIVEWAY ADJUSTMENT		\$75	
LF	GUIDE RAIL	100	\$25	\$2,500
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	1	\$3,000	\$3,000
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN		\$150	
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB	450	\$60	\$27,000
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK		\$150	
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED	54	\$100	\$5,350
LF	4" PAVEMENT MARKINGS	1502	\$1	\$1,502
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS		\$8	
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$3,900	\$3,900
LS	EROSION AND SEDIMENTATION CONTROLS		\$1,000	\$1,000
LS	DRAINAGE		\$2,400	\$2,400
LS	MOBILIZATION		\$3,900	\$3,828

Total		\$107,579
Escalation @	3%/year Through 2020	<u>\$9,980.00</u>
Subtotal		\$117,559.13

Contingency @	20%	<u>\$23,600</u>
Total Construction Cost		\$141,159

Construction Oversight @	12%	<u>\$17,000</u>
Subtotal		\$158,159

Engineering Design		\$9,600
Utility Relocation		---
Right-of-Way Acquisition		<u>\$17,200</u>

Total Cost		\$185,000
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**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 4: Southpointe Boulevard"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$90,000	\$90,000
CY	CLASS 1 EXCAVATION	131432	\$15	\$1,971,480
CY	TOPSOIL FURNISH AND PLACE	5550	\$35	\$194,250
SY	SEEDING AND MULCHING	49825	\$5	\$249,125
SY	MILL/OVERLAY	57294	\$25	\$1,432,350
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)	4426	\$85	\$376,210
SY	SUBBASE (SR 79 NEW RAMP)	4426	\$30	\$132,780
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	13590	\$75	\$1,019,250
SY	SUBBASE (SIDE ROADS)	13590	\$20	\$271,800
SY	DRIVEWAY ADJUSTMENT	463	\$75	\$34,725
LF	GUIDE RAIL	2613	\$25	\$65,325
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	14	\$3,000	\$42,000
SY	CONCRETE MEDIAN	1368	\$150	\$205,200
LF	PLAIN CONCRETE MOUNTABLE CURB	1506	\$60	\$90,360
LF	PLAIN CEMENT CONCRETE CURB	2243	\$50	\$112,150
EACH	HIGHWAY LIGHTING	16	\$10,000	\$160,000
EACH	ITS RELOCATION	1	\$50,000	\$50,000
LF	4" PAVEMENT MARKINGS	26547	\$1	\$26,547
LF	6" PAVEMENT MARKINGS	24686	\$2	\$49,372
LF	24" PAVEMENT MARKINGS	7203	\$8	\$57,624
EACH	CANTILEVER SIGN STRUCTURE	2	\$150,000	\$300,000
EACH	REMOVE SIGN STRUCTURE	2	\$20,000	\$40,000
EACH	TRAFFIC SIGNAL	7	\$250,000	\$1,750,000
EACH	MODIFIED TRAFFIC SIGNAL	4	\$100,000	\$400,000
EACH	REMOVE TRAFFIC SIGNAL	3	\$30,000	\$90,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$368,500	\$368,500
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE		\$230,300	\$230,300
LS	MOBILIZATION		\$368,500	\$368,422
				<hr/>
			Total	\$10,177,770
			Escalation @ 3%/year Through 2020	\$943,760.00
			Subtotal	\$11,121,529.92
				<hr/>
			Contingency @ 20%	\$2,224,400
			Total Construction Cost	\$13,345,930
				<hr/>
			Construction Oversight @ 12%	\$1,601,600
			Subtotal	\$14,947,530
				<hr/>
			Engineering Design	\$921,100
			Utility Relocation	\$460,600
			Right-of-Way Acquisition	\$500,000
				<hr/>
			Total Cost	\$16,829,300

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
Concept Location 5: McMurray Road Corridor Between US 19 and Morganza Road (1009-08)**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$75,000	\$75,000
CY	CLASS 1 EXCAVATION	11440	\$15	\$171,600
CY	CLASS 1B EXCAVATION		\$30	
CY	FOREIGN BORROW EXCAVATION		\$20	
CY	TOPSOIL FURNISH AND PLACE	2180	\$35	\$76,300
SY	SEEDING AND MULCHING	19810	\$5	\$99,050
SY	MILL/OVERLAY		\$25	
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)		\$130	
SY	FULL DEPTH SHOULDER (SR 79)		\$110	
SY	SUBBASE (SR 79)		\$30	
SY	FULL DEPTH ASPHALT PAVEMENT	34670	\$85	\$2,946,950
SY	SUBBASE	34670	\$30	\$1,040,100
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)		\$75	
SY	SUBBASE (SIDE ROADS)		\$20	
SY	DRIVEWAY ADJUSTMENT	2150	\$75	\$161,250
LF	GUIDE RAIL	668	\$25	\$16,700
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	4	\$3,000	\$12,000
LF	SINGLE FACE CONCRETE BARRIER		\$75	
LF	CONCRETE MEDIAN BARRIER		\$60	
SY	CONCRETE MEDIAN		\$150	
SY	CONCRETE MEDIAN (BRIDGE)		\$175	
LF	PLAIN CONCRETE MOUNTABLE CURB		\$60	
LF	PLAIN CEMENT CONCRETE CURB		\$50	
SY	CEMENT CONCRETE SIDEWALK	1726	\$150	\$258,833
EACH	HIGHWAY LIGHTING		\$10,000	
EACH	ITS RELOCATION		\$50,000	
SF	FABRICATED SIGN - STRUCTURE MOUNTED		\$45	
SF	FABRICATED SIGN - GROUND MOUNTED	270	\$100	\$27,000
LF	4" PAVEMENT MARKINGS	40110	\$1	\$40,110
LF	6" PAVEMENT MARKINGS		\$2	
LF	8" PAVEMENT MARKINGS		\$2	
LF	12" PAVEMENT MARKINGS		\$2	
LF	24" PAVEMENT MARKINGS	120	\$8	\$960
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION	2016	\$300	\$604,800
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$231,200	\$231,200
LS	EROSION AND SEDIMENTATION CONTROLS		\$57,800	\$57,800
LS	DRAINAGE		\$144,500	\$144,500
LS	MOBILIZATION		\$231,200	\$231,150
			Total	\$6,445,303
			Escalation @ 3%/year Through 2020	\$597,660.00
			Subtotal	\$7,042,963.26
			Contingency @ 20%	\$1,408,600
			Total Construction Cost	\$8,451,563
			Construction Oversight @ 12%	\$1,014,200
			Subtotal	\$9,465,763
			Engineering Design	\$577,900
			Utility Relocation	\$289,000
			Right-of-Way Acquisition	\$130,200
			Total Cost	\$10,462,900

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6: Galley Rd. (SR 1023) / McClelland Rd. (SR 1023) / Washington Rd. (US 19)"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$2,500	\$2,500
CY	CLASS 1 EXCAVATION	2184	\$15	\$32,753
CY	TOPSOIL FURNISH AND PLACE	91	\$35	\$3,176
SY	SEEDING AND MULCHING	817	\$5	\$4,083
SY	FULL DEPTH SHOULDER	513	\$110	\$56,457
SY	SUBBASE	6551	\$30	\$196,521
SY	FULL DEPTH ASPHALT PAVEMENT	6037	\$85	\$513,147
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	84	\$75	\$6,306
SY	SUBBASE (SIDE ROADS)	84	\$20	\$1,682
SY	DRIVEWAY ADJUSTMENT	211	\$75	\$15,848
LF	GUIDE RAIL	226	\$25	\$5,652
EACH	GUIDE RAIL TERMINAL END SECTION, SINGLE	2	\$100	\$200
LF	PLAIN CEMENT CONCRETE CURB	1535	\$50	\$76,767
SY	CEMENT CONCRETE SIDEWALK	12	\$150	\$1,753
LF	4" PAVEMENT MARKINGS	6262	\$1	\$6,262
LF	24" PAVEMENT MARKINGS	965	\$8	\$7,721
SF	STRUCTURE WIDEN/MODIFICATION	1160	\$300	\$348,000
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$61,200	\$61,200
LS	EROSION AND SEDIMENTATION CONTROLS		\$15,300	\$15,300
LS	DRAINAGE		\$38,300	\$38,300
LS	MOBILIZATION		\$61,200	\$61,200
				<hr/>
Total				\$1,704,827
Escalation @ 3%/year Through 2020				\$158,090.00
Subtotal				\$1,862,917.36
				<hr/>
Contingency @ 20%				\$372,600
Total Construction Cost				\$2,235,517
				<hr/>
Construction Oversight @ 12%				\$268,300
Subtotal				\$2,503,817
				<hr/>
Engineering Design				\$76,500
Utility Relocation				\$76,500
Right-of-Way Acquisition				\$300,000
				<hr/>
Total Cost				\$2,956,900

SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6: Demar Boulevard / Washington Rd. (US 19)"

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	REMOVE TRAFFIC SIGNAL	1	\$30,000	\$30,000
LS	MOBILIZATION		\$11,200	\$11,200
				<hr/>
	Total			\$296,800
	Escalation @ 3%/year Through 2020			\$27,530.00
	Subtotal			\$324,330.00
				<hr/>
	Contingency @ 20%			\$64,900
	Total Construction Cost			\$389,230
				<hr/>
	Construction Oversight @ 12%			\$46,800
	Subtotal			\$436,030
				<hr/>
	Engineering Design			\$14,000
	Utility Relocation			\$14,000
	Right-of-Way Acquisition			---
				<hr/>
	Total Cost			\$464,100

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6: Adams Ave. / Euclid Ave. / Morganza Rd."**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$2,500	\$2,500
CY	CLASS 1 EXCAVATION	2914	\$15	\$43,704
CY	TOPSOIL FURNISH AND PLACE	48	\$35	\$1,677
SY	SEEDING AND MULCHING	431	\$5	\$2,156
SY	SUBBASE	8741	\$30	\$262,222
SY	FULL DEPTH ASPHALT PAVEMENT	7427	\$85	\$631,260
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	35	\$75	\$2,601
SY	SUBBASE (SIDE ROADS)	35	\$20	\$693
SY	DRIVEWAY ADJUSTMENT	401	\$75	\$30,052
LF	PLAIN CEMENT CONCRETE CURB	2085	\$50	\$104,252
SY	CEMENT CONCRETE SIDEWALK	1153	\$150	\$172,977
EACH	HIGHWAY LIGHTING	1	\$10,000	\$10,000
LF	4" PAVEMENT MARKINGS	7123	\$1	\$7,123
LF	6" PAVEMENT MARKINGS	67	\$2	\$135
LF	24" PAVEMENT MARKINGS	294	\$8	\$2,350
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	REPLACE GRADE CROSSING	1	\$50,000	\$50,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$30,500	\$30,500
LS	EROSION AND SEDIMENTATION CONTROLS		\$15,300	\$15,300
LS	DRAINAGE		\$38,100	\$38,100
LS	MOBILIZATION		\$61,000	\$61,000
				<hr/>
Total				\$1,718,602
Escalation @ 3%/year Through 2020				\$159,370.00
Subtotal				\$1,877,971.78
				<hr/>
Contingency @ 20%				\$375,600
Total Construction Cost				\$2,253,572
				<hr/>
Construction Oversight @ 12%				\$270,500
Subtotal				\$2,524,072
				<hr/>
Engineering Design				\$76,200
Utility Relocation				\$76,200
Right-of-Way Acquisition				\$700,000
				<hr/>
Total Cost				\$3,376,500

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6: McClelland Rd. (SR 1023) / McDowell Ln. / DeMar Blvd."**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$2,500	\$2,500
CY	CLASS 1 EXCAVATION	696	\$15	\$10,445
CY	TOPSOIL FURNISH AND PLACE	143	\$35	\$4,992
SY	SEEDING AND MULCHING	1284	\$5	\$6,419
SY	MILL/OVERLAY	3483	\$25	\$87,065
SY	FULL DEPTH SHOULDER	869	\$110	\$95,613
SY	SUBBASE	2089	\$30	\$62,670
SY	FULL DEPTH ASPHALT PAVEMENT	1220	\$85	\$103,682
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	37	\$75	\$2,803
SY	SUBBASE (SIDE ROADS)	37	\$20	\$747
SY	DRIVEWAY ADJUSTMENT	108	\$75	\$8,083
LF	4" PAVEMENT MARKINGS	5830	\$1	\$5,830
LF	24" PAVEMENT MARKINGS	563	\$8	\$4,500
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$13,000	\$13,000
LS	EROSION AND SEDIMENTATION CONTROLS		\$6,500	\$6,500
LS	DRAINAGE		\$16,200	\$16,200
LS	MOBILIZATION		\$25,900	\$25,900
Total				\$706,950
Escalation @ 3%/year Through 2020				\$65,560.00
Subtotal				\$772,509.67
Contingency @ 20%				\$154,600
Total Construction Cost				\$927,110
Construction Oversight @ 12%				\$111,300
Subtotal				\$1,038,410
Engineering Design				\$32,300
Utility Relocation				\$32,300
Right-of-Way Acquisition				\$200,000
Total Cost				\$1,303,100

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 7: Weavertown Rd. / Cavasina Dr. / Morganza Rd."**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$5,000	\$5,000
CY	CLASS 1 EXCAVATION	1956	\$15	\$29,340
CY	TOPSOIL FURNISH AND PLACE	35	\$35	\$1,225
SY	SEEDING AND MULCHING	417	\$5	\$2,085
SY	MILL/OVERLAY	8409	\$25	\$210,225
SY	FULL DEPTH ASPHALT PAVEMENT	6704	\$85	\$569,840
SY	SUBBASE	6704	\$30	\$201,120
SY	DRIVEWAY ADJUSTMENT	100	\$75	\$7,500
SY	CONCRETE MEDIAN	165	\$150	\$24,750
LF	PLAIN CONCRETE MOUNTABLE CURB	2986	\$60	\$179,160
LF	PLAIN CEMENT CONCRETE CURB	3046	\$50	\$152,300
SY	CEMENT CONCRETE SIDEWALK	1576	\$150	\$236,400
EACH	HIGHWAY LIGHTING	10	\$10,000	\$100,000
LF	4" PAVEMENT MARKINGS	10015	\$1	\$10,015
LF	6" PAVEMENT MARKINGS	760	\$2	\$1,520
LF	24" PAVEMENT MARKINGS	222	\$8	\$1,776
EACH	CANTILEVER SIGN STRUCTURE	1	\$150,000	\$150,000
SF	BRIDGE DEMOLITION	11000	\$50	\$550,000
SF	STRUCTURE (SIMPLE FRAMING)	18500	\$325	\$6,012,500
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
EACH	REPLACE GRADE CROSSING	1	\$50,000	\$50,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$349,800	\$349,800
LS	EROSION AND SEDIMENTATION CONTROLS		\$87,500	\$87,500
LS	DRAINAGE		\$218,700	\$218,700
LS	MOBILIZATION		\$349,800	\$349,800
Total				\$9,750,556
Escalation @ 3%/year Through 2020				\$904,140.00
Subtotal				\$10,654,696.00
Contingency @ 20%				\$2,131,000
Total Construction Cost				\$12,785,696
Construction Oversight @ 12%				\$1,534,300
Subtotal				\$14,319,996
Engineering Design				\$437,300
Utility Relocation				\$437,300
Right-of-Way Acquisition				\$1,500,000
Total Cost				\$16,694,600

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 7: Washington Rd. (US 19) / Weavertown Rd. (SR 1025)"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>	
LS	CLEARING AND GRUBBING	1	\$2,500	\$2,500	
CY	CLASS 1 EXCAVATION	578	\$15	\$8,670	
CY	TOPSOIL FURNISH AND PLACE	70	\$35	\$2,450	
SY	SEEDING AND MULCHING	600	\$5	\$3,000	
SY	MILL/OVERLAY	2263	\$25	\$56,575	
SY	FULL DEPTH SHOULDER	150	\$110	\$16,500	
SY	SUBBASE	1735	\$30	\$52,050	
SY	FULL DEPTH ASPHALT PAVEMENT	1585	\$85	\$134,725	
SY	DRIVEWAY ADJUSTMENT	30	\$75	\$2,250	
LF	GUIDE RAIL	325	\$25	\$8,125	
LF	PLAIN CEMENT CONCRETE CURB	625	\$50	\$31,250	
EACH	HIGHWAY LIGHTING	1	\$10,000	\$10,000	
LF	4" PAVEMENT MARKINGS	2230	\$1	\$2,230	
LF	24" PAVEMENT MARKINGS	20	\$8	\$160	
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000	
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$11,700	\$11,700	
LS	EROSION AND SEDIMENTATION CONTROLS		\$5,900	\$5,900	
LS	DRAINAGE		\$14,600	\$14,600	
LS	MOBILIZATION		\$23,300	\$23,300	
				Total	\$635,985
				Escalation @ 3%/year Through 2020	\$58,980.00
				Subtotal	\$694,965.00
				Contingency @ 20%	\$139,000
				Total Construction Cost	\$833,965
				Construction Oversight @ 12%	\$100,100
				Subtotal	\$934,065
				Engineering Design	\$29,100
				Utility Relocation	\$29,100
				Right-of-Way Acquisition	\$100,000
				Total Cost	\$1,092,300

SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 7: Weavertown Rd. (SR 1025) / I-79 NB Exit Ramp / Hook St."

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
EACH	TRAFFIC SIGNAL	1	\$250,000	\$250,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$5,000	\$5,000
LS	DRAINAGE		\$6,300	\$6,300
LS	MOBILIZATION		\$10,000	<u>\$10,000</u>
				Total
				\$271,300
			Escalation @ 3%/year Through 2020	<u>\$25,160.00</u>
				Subtotal
				\$296,460.00
			Contingency @ 20%	<u>\$59,300</u>
				Total Construction Cost
				\$355,760
			Construction Oversight @ 12%	<u>\$42,700</u>
				Subtotal
				\$398,460
				Engineering Design
				\$12,500
				Utility Relocation
				\$12,500
				Right-of-Way Acquisition
				<u>---</u>
				Total Cost
				\$423,500

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6/7: Southbound Connector"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$45,000	\$45,000
CY	CLASS 1 EXCAVATION	115072	\$15	\$1,726,080
CY	TOPSOIL FURNISH AND PLACE	1460	\$35	\$51,100
SY	SEEDING AND MULCHING	13070	\$5	\$65,350
SY	FULL DEPTH COMPOSITE PAVEMENT (SR 79)	6574	\$130	\$854,620
SY	FULL DEPTH SHOULDER (SR 79)	4889	\$110	\$537,790
SY	SUBBASE (SR 79)	11463	\$30	\$343,890
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)	3932	\$85	\$334,220
SY	SUBBASE (SR 79 NEW RAMP)	3932	\$30	\$117,960
LF	GUIDE RAIL	6679	\$25	\$166,975
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	6	\$3,000	\$18,000
LF	CONCRETE MEDIAN BARRIER	3663	\$60	\$219,780
EACH	HIGHWAY LIGHTING	23	\$10,000	\$230,000
LF	4" PAVEMENT MARKINGS	14177	\$1	\$14,177
LF	6" PAVEMENT MARKINGS	1555	\$2	\$3,110
LF	24" PAVEMENT MARKINGS	1382	\$8	\$11,056
SF	RETAINING WALLS, <15' HEIGHT	24030	\$200	\$4,806,000
EACH	TRAFFIC SIGNAL	9	\$250,000	\$2,250,000
EACH	MODIFIED TRAFFIC SIGNAL	3	\$100,000	\$300,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$242,000	\$242,000
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE		\$302,400	\$302,400
LS	MOBILIZATION		\$483,900	\$483,804
			Total	\$13,123,312
			Escalation @ 3%/year Through 2020	<u>\$1,216,890.00</u>
			Subtotal	\$14,340,202.32
			Contingency @ 20%	<u>\$2,868,100</u>
			Total Construction Cost	\$17,208,302
			Construction Oversight @ 12%	<u>\$2,065,000</u>
			Subtotal	\$19,273,302
			Engineering Design	\$604,800
			Utility Relocation	\$604,800
			Right-of-Way Acquisition	<u>\$300,000</u>
			Total Cost	\$20,783,000

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6/7: Northbound Connector - Alternate 1"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$200,000	\$200,000
CY	CLASS 1 EXCAVATION	1187000	\$15	\$17,805,000
CY	TOPSOIL FURNISH AND PLACE	18950	\$35	\$663,250
SY	SEEDING AND MULCHING	173910	\$5	\$869,550
SY	MILL/OVERLAY	2633	\$25	
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)	20555	\$85	\$1,747,175
SY	SUBBASE (SR 79 NEW RAMP)	20555	\$30	\$616,650
LF	GUIDE RAIL	4863	\$25	\$121,575
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	10	\$3,000	\$30,000
LF	SINGLE FACE CONCRETE BARRIER	288	\$75	\$21,600
SY	CONCRETE MEDIAN	135	\$150	\$20,250
LF	PLAIN CONCRETE MOUNTABLE CURB	149	\$60	\$8,940
EACH	HIGHWAY LIGHTING	26	\$10,000	\$260,000
LF	6" PAVEMENT MARKINGS	15130	\$2	\$30,260
LF	8" PAVEMENT MARKINGS	400	\$2	\$800
SF	STRUCTURE (SIMPLE FRAMING)	5124	\$325	\$1,665,300
EACH	TRAFFIC SIGNAL	11	\$250,000	\$2,750,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$537,600	\$537,600
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE		\$672,000	\$672,000
LS	MOBILIZATION		\$1,075,100	\$1,075,047
Total				\$29,094,997
Escalation @ 3%/year Through 2020				<u>\$2,697,900.00</u>
Subtotal				\$31,792,897.00
Contingency @ 20%				<u>\$6,358,600</u>
Total Construction Cost				\$38,151,497
Construction Oversight @ 12%				<u>\$4,578,200</u>
Subtotal				\$42,729,697
Engineering Design				\$1,343,900
Utility Relocation				\$1,343,900
Right-of-Way Acquisition				<u>\$1,450,000</u>
Total Cost				\$46,867,500

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6/7: Northbound Connector - Alternate 2"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$200,000	\$200,000
CY	CLASS 1 EXCAVATION	1207045	\$15	\$18,105,675
CY	TOPSOIL FURNISH AND PLACE	21045	\$35	\$736,575
SY	SEEDING AND MULCHING	189425	\$5	\$947,125
SY	MILL/OVERLAY	13267	\$25	
SY	FULL DEPTH ASPHALT PAVEMENT (SR 79 NEW RAMP)	13745	\$85	\$1,168,325
SY	SUBBASE (SR 79 NEW RAMP)	13745	\$30	\$412,350
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	17082	\$75	\$1,281,150
SY	SUBBASE (SIDE ROADS)	17082	\$20	\$341,640
LF	GUIDE RAIL	3225	\$25	\$80,625
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	21	\$3,000	\$63,000
LF	SINGLE FACE CONCRETE BARRIER	2443	\$75	\$183,225
LF	CONCRETE MEDIAN BARRIER	6300	\$60	\$378,000
SY	CONCRETE MEDIAN	134	\$150	\$20,100
LF	PLAIN CONCRETE MOUNTABLE CURB	154	\$60	\$9,240
EACH	HIGHWAY LIGHTING	37	\$10,000	\$370,000
LF	4" PAVEMENT MARKINGS	27222	\$1	\$27,222
LF	6" PAVEMENT MARKINGS	3597	\$2	\$7,194
SF	RETAINING WALLS, <15' HEIGHT	6970	\$200	\$1,394,000
SF	RETAINING WALLS, >15' HEIGHT	28825	\$300	\$8,647,500
EACH	TRAFFIC SIGNAL	12	\$250,000	\$3,000,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$754,100	\$754,100
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE		\$942,700	\$942,700
LS	MOBILIZATION		\$1,508,200	\$1,508,185
Total				\$40,577,931
Escalation @ 3%/year Through 2020				\$3,762,670.00
Subtotal				\$44,340,600.84
Contingency @ 20%				\$8,868,200
Total Construction Cost				\$53,208,801
Construction Oversight @ 12%				\$6,385,100
Subtotal				\$59,593,901
Engineering Design				\$1,885,300
Utility Relocation				\$1,885,300
Right-of-Way Acquisition				\$1,400,000
Total Cost				\$64,764,600

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 6/7: Northbound Connector - Alternate 3"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$170,000	\$170,000
CY	CLASS 1 EXCAVATION	785277	\$15	\$11,779,155
CY	TOPSOIL FURNISH AND PLACE	17390	\$35	\$608,650
SY	SEEDING AND MULCHING	156470	\$5	\$782,350
SY	MILL/OVERLAY	3980	\$25	
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	11916	\$75	\$893,700
SY	SUBBASE (SIDE ROADS)	11916	\$20	\$238,320
LF	GUIDE RAIL	6413	\$25	\$160,325
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	8	\$3,000	\$24,000
SY	CONCRETE MEDIAN	134	\$150	\$20,100
LF	PLAIN CONCRETE MOUNTABLE CURB	150	\$60	\$9,000
EACH	HIGHWAY LIGHTING	30	\$10,000	\$300,000
LF	4" PAVEMENT MARKINGS	16929	\$1	\$16,929
LF	6" PAVEMENT MARKINGS	46	\$2	\$92
LF	24" PAVEMENT MARKINGS	859	\$8	\$6,872
EACH	TRAFFIC SIGNAL	11	\$250,000	\$2,750,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$357,200	\$357,200
LS	EROSION AND SEDIMENTATION CONTROLS			
LS	DRAINAGE		\$446,500	\$446,500
LS	MOBILIZATION		\$714,400	\$714,360
			Total	\$19,277,553
			Escalation @ 3%/year Through 2020	<u>\$1,787,550.00</u>
			Subtotal	\$21,065,102.72
			Contingency @ 20%	<u>\$4,213,100</u>
			Total Construction Cost	\$25,278,203
			Construction Oversight @ 12%	<u>\$3,033,400</u>
			Subtotal	\$28,311,603
			Engineering Design	\$893,000
			Utility Relocation	\$893,000
			Right-of-Way Acquisition	<u>\$1,350,000</u>
			Total Cost	\$31,447,700

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 8: Burgettstown Rd. (SR 18) / Main St. (SR 18/US 50)"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
EACH	HIGHWAY LIGHTING	1	\$10,000	\$10,000
LF	4" PAVEMENT MARKINGS	3000	\$1	\$3,000
LF	24" PAVEMENT MARKINGS	36	\$8	\$288
EACH	OVERHEAD TRUSS SIGN STRUCTURE		\$400,000	
EACH	CANTILEVER SIGN STRUCTURE		\$150,000	
EACH	REMOVE SIGN STRUCTURE		\$20,000	
SF	RETAINING WALLS, <15' HEIGHT		\$200	
SF	RETAINING WALLS, >15' HEIGHT		\$300	
SF	NOISE WALLS		\$50	
SF	BRIDGE DEMOLITION		\$50	
SY	LATEX OVERLAY		\$290	
LF	PARAPET MODIFICATION/REPLACEMENT		\$400	
SF	STRUCTURE (SIMPLE FRAMING)		\$325	
SF	STRUCTURE (COMPLEX FRAMING)		\$400	
SF	STRUCTURE WIDEN/MODIFICATION		\$300	
EACH	TRAFFIC SIGNAL		\$250,000	
EACH	MODIFIED TRAFFIC SIGNAL		\$100,000	
EACH	REMOVE TRAFFIC SIGNAL		\$30,000	
EACH	ROADWAY SIGNAGE	6	\$250	\$1,500
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$300	\$300
LS	DRAINAGE		\$400	\$400
LS	MOBILIZATION		\$600	\$600
				<u>\$16,088</u>
Escalation @ 3%/year Through 2020				<u>\$1,500.00</u>
Subtotal				\$17,588.00
Contingency @ 20%				<u>\$3,600</u>
Total Construction Cost				\$21,188
Construction Oversight @ 12%				<u>\$2,600</u>
Subtotal				\$23,788
Engineering Design				\$700
Utility Relocation				\$700
Right-of-Way Acquisition				<u>---</u>
Total Cost				\$25,200

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 9: Henderson Road (SR 18) / Avella Rd. (SR 50)"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
EACH	HIGHWAY LIGHTING	2	\$10,000	\$20,000
LF	4" PAVEMENT MARKINGS	160	\$1	\$160
LF	24" PAVEMENT MARKINGS	156	\$8	\$1,248
EACH	ROADWAY SIGNAGE	4	\$250	\$1,000
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$500	\$500
LS	MOBILIZATION		\$900	\$900
				<hr/>
	Total			\$23,808
	Escalation @ 3%/year Through 2020			\$2,210.00
	Subtotal			\$26,018.00
				<hr/>
	Contingency @ 20%			\$5,300
	Total Construction Cost			\$31,318
				<hr/>
	Construction Oversight @ 12%			\$3,800
	Subtotal			\$35,118
				<hr/>
	Engineering Design			\$1,100
	Utility Relocation			---
	Right-of-Way Acquisition			---
				<hr/>
	Total Cost			\$36,300

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 9: REVISED Henderson Road (SR 18) / Avella Rd. (SR 50)"**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$10,000	\$10,000
CY	CLASS 1 EXCAVATION	1,850	\$15	\$27,757
CY	TOPSOIL FURNISH AND PLACE	130	\$35	\$4,541
SY	SEEDING AND MULCHING	389	\$5	\$1,946
SY	MILL/OVERLAY	1,441	\$25	\$36,033
SY	FULL DEPTH ASPHALT PAVEMENT (SIDE ROADS)	951	\$75	\$71,292
SY	SUBBASE (SIDE ROADS)	951	\$20	\$19,011
SY	DRIVEWAY ADJUSTMENT	389	\$75	\$29,167
LF	GUIDE RAIL	255	\$25	\$6,375
EACH	GUIDE RAIL TRANSITIONS AND END TREATMENTS	2	\$3,000	\$6,000
LF	PLAIN CEMENT CONCRETE CURB	328	\$50	\$16,400
EACH	HIGHWAY LIGHTING	2	\$10,000	\$20,000
EACH	ROADWAY SIGNAGE	4	\$250	\$1,000
LF	4" PAVEMENT MARKINGS	3,382	\$1	\$3,382
LF	24" PAVEMENT MARKINGS	75	\$8	\$600
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$10,200	\$10,200
LS	EROSION AND SEDIMENTATION CONTROLS		\$5,100	\$5,100
LS	DRAINAGE		\$6,400	\$6,400
LS	MOBILIZATION		\$6,400	\$6,338
				<hr/>
			Total	\$281,542
			Escalation @ 3%/year Through 2020	\$26,110.00
			Subtotal	\$307,651.70
				<hr/>
			Contingency @ 20%	\$61,600
			Total Construction Cost	\$369,252
				<hr/>
			Construction Oversight @ 12%	\$44,400
			Subtotal	\$413,652
				<hr/>
			Engineering Design	\$25,400
			Utility Relocation	\$12,700
			Right-of-Way Acquisition	---
				<hr/> <hr/>
			Total Cost	\$451,800

**SPC Northern Washington County Transportation Plan
Alternative Analysis
Conceptual Construction Cost Estimate
"Concept Location 10: SR 0980 / OHare Rd."**

<i>Unit</i>	<i>Item Description</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Item Cost</i>
LS	CLEARING AND GRUBBING	1	\$2,500	\$2,500
CY	CLASS 1 EXCAVATION	70	\$50	\$3,500
CY	TOPSOIL FURNISH AND PLACE	25	\$35	\$875
SY	SEEDING AND MULCHING	850	\$3	\$2,550
EACH	ROADWAY SIGNAGE	2	\$250	\$500
LS	MAINTENANCE AND PROTECTION OF TRAFFIC		\$200	\$200
LS	MOBILIZATION		\$400	\$400
				<u>\$10,525</u>
	Escalation @	3%/year Through 2020		\$980.00
	Subtotal			\$11,505.00
	Contingency @	20%		\$2,400
	Total Construction Cost			\$13,905
	Construction Oversight @	12%		\$1,700
	Subtotal			\$15,605
	Engineering Design			\$500
	Utility Relocation			\$500
	Right-of-Way Acquisition			<u>\$20,000</u>
	Total Cost			\$36,700

APPENDIX C

Meeting Summaries

Northern Washington County Corridor Based Transportation Plan

Draft Meeting Summary

Steering Committee Meeting No. 1 | January 17, 2018 | 2:00 PM – 3:30 PM

Chartiers Township Municipal Building, 2 Buccaneer Drive, Houston, PA

Attendees

See attached sign-in sheet

Meeting Materials

- Agenda
- Project Overview and Approach
- Study Area Roll Plots

Meeting Purpose

To review the scope of work for the study, gather input from the group on transportation and land use considerations and establish lines of communication. We will also discuss and agree on the Goals and Objectives for the Plan and make sure that member's expectations are understood and will be met. The following is a summary of the meeting discussion.

I. Welcome / Introductions

- A. SPC – Andy Waple, Daniel Alwine, Chuck Imbrogno
- B. Michael Baker International – Max Heckman, Lu Ann May
- C. Moore Design Associates – Marilyn Gelzhiser

II. Project Overview and Approach

Andy Waple provided a project overview, stating the project was first discussed a few years ago when there was concern about excessive traffic congestion and the expected increase in traffic associated with the completion of the Southern Beltway from SR 22 to I-79 in 2021. The next segment of the Southern Beltway connecting I-79 to the Mon-Fayette Expressway / SR 51 is projected to begin between 2035 and 2040. The northern Washington County area is expected to see continued development and increased traffic. The northern Washington County Corridor Based Transportation Plan will evaluate the study corridors and intersections within the Study Area and identify short-term and long-term improvements, identifying the least expensive improvements first and then the more expensive.

Max Heckman provided an overview of the technical elements of the study as described on the Project Overview and Approach handout.

III. Study Goals and Objectives

Marilyn Gelzhiser led the discussion of identifying the goals and objectives for the study. The goals and objectives will help lead the study and prioritize the improvements. Attendees identified the following potential goals and objectives for the study:

Integrate Signal Improvements

- Integrate ITS and signal improvements
- Evaluate need for signalized intersections



- Implement coordinated traffic signals
- Evaluate traffic signal priority for pedestrians

Improve Safety

- Address safety concerns
- Improve I-79 on/off ramps
 - Review PennDOT planned improvements to I-79 from approximately Bridgeville to Southpointe

Reduce Congestion

- Reduce traffic congestion
- Improve I-79 on/off ramps
 - Review PennDOT planned improvements to I-79 from approximately Bridgeville to Southpointe

Identify Deficiencies

- Several area roadways are in need of reconstruction. Identify how roadway reconstruction will be prioritized and scheduled.
- Evaluate deficient intersections and identify mitigation measures
- Evaluate roadways near planned development
 - Morganza Road and West McMurray corridors along with planned development (Coal Valley)
- Evaluate Roundabout feasibility

Improve Connectivity

- Improve access from SR 19 in northern Peters Township to I-79 either through improvements to existing area roadways or new connector roadway
 - Review existing PennDOT projects including adaptive signals along SR 19
- Evaluate origin / destination information within the study area
 - Review origin/destination data collected for Washington County transit study
- Improve access to Southpointe from adjacent communities
- Improve transit options to Southpointe
- Provide pedestrian access in local communities

Evaluate Funding Options

- Identify non-traditional funding methods. Evaluate level of design needed to improve funding chances
- Identify funding limitations. Identify “low hanging fruit” / less expensive improvements
- Evaluate Green Light Go funding for signal improvements which favor municipal applications. Consider multi-municipal coordination. Funding match reduced to 20%
- Evaluate Traffic Impact fees for new development. Currently implemented by Peters Township

IV. Initial Stakeholder Input – Map Exercise

Max led a map exercise to identify bottleneck/congestion locations, safety concerns, and planned developments. Additionally, attendees were asked to identify multimodal linkages that are missing or lacking, areas that would benefit from improved transit routes or roadways interfering with existing transit, and planned bicycle-pedestrian facilities. The following locations were identified:

Bottleneck / Congestion Locations

- Canonsburg

- Morganza Road west of Weavertown Road intersection
- Chartiers
 - SR 519 (Western Ave) @ Mark West entrance
- Houston
 - I-79 Houston exit
 - SR 519 (Western Avenue) @ Beachview Street
- North Strabane
 - SR 19 @ Weavertown Road
 - Morganza Road @ West McMurray Road
 - I-79 Southpointe exit ramps
 - I-79 Houston exit ramps
- Peters Township
 - SR 19 @ Valley Brook Road
 - SR 19 @ West McMurray Road
 - SR 19 @ McDowell Lane
 - SR 19 @ Waterdam Road

Safety Concerns

- Cecil
 - I-79 Southpointe exit ramps
 - SR 50 “rural” road has become collector road
- Chartiers
 - SR 519 (Western Ave) @ McKnight Road
- Mt Pleasant
 - Public safety on heavily traveled “rural” roads
 - SR 50 @ SR 18
- North Strabane
 - SR 19 @ Conklin Road
 - SR 19 @ Mansfield Road
 - SR 19 @ Chubbic Road / Woodruff Memorial Park
 - SR 19 @ Lindley Road / Kelley Road
 - SR 19 @ Linden Road

Planned Developments

- Cannonsburg
 - Ft Pitt Bridgeworks Redevelopment Interest
 - Tatano Wire Redevelopment Potential
- Cecil
 - Senior Development, Traditions of America
- Chartiers Township
 - Residential Development (40 lots)
- Mt Pleasant

- Cherry Valley Estates (300+ Homes)
- North Strabane
 - Coal Valley Development
- Peters Township
 - Primrose Daycare Center
 - Mixed Use Development

Multimodal Linkage Improvements

- Cannonsburg
 - Southpointe and Canonsburg Connection
- Cecil
 - Southpointe traffic using local roadways to back entrance
- Mt Pleasant
 - Expected increase in traffic on SR 18 due to Shell Plant
- Peters Township
 - Access to I-79 from SR 19 in Peters Township via McDowell Rd, West McMurray Rd, Valleybrook Rd

Improved Transit Routes

- Cecil
 - Southpointe shuttle service (Last mile)
 - Southern Beltway Bus Rapid Transit to Southpointe

Planned bicycle / pedestrian facilities

- Houston
 - Extend sidewalk along Reed Ave
- Canonsburg
 - Main Street Phase II (Utilities and Sidewalk)
- Cecil
 - Connect Montour Trail to Southpointe and Park n Rides
- Mt Pleasant
 - Sidewalks in Hickory

V. Next Steps

- Develop Goals and Objectives based on input
- Conduct Public Meeting (February 2018)
 - Prepare a map of planned PennDOT improvements with expected schedule and costs
- Collect traffic data & Conduct traffic analysis
- Next Steering Committee Meeting (March-April 2018)



Southwestern Pennsylvania Commission (SPC)
 Northern Washington County Corridor Based Transportation Plan
 Steering Committee Meeting No. 1

Michael Baker

INTERNATIONAL

January 17, 2018

NAME (PLEASE PRINT)	ADDRESS	Email
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Southwestern Pennsylvania Commission (SPC)
Northern Washington County Corridor Based Transportation Plan
Steering Committee Meeting No. 1

Michael Baker
INTERNATIONAL

January 17, 2018

NAME (PLEASE PRINT)	ADDRESS	Email
Gay Barber	Penn Pot 12	GABARB@PA2.COM
Lise Cunniff	Wash Co	Lcunniff@washco.pa.gov

Northern Washington County Corridor Based Transportation Plan

Draft Public Workshop Summary

Public Workshop No. 1 | March 27, 2018 | 5:00 PM – 7:00 PM

Washington County Fairgrounds, Hall 2

Attendees

See attached sign-in sheet

Workshop Exhibits

- Study Overview
- Study Intersections and Study Corridors
- PennDOT Transportation Improvement Program Projects
- Study Area Roll Plots

Workshop Purpose

To introduce the study and gather input from the public on multimodal transportation issues and needs in northern Washington County.

I. Welcome / Introductions

- A. SPC – Andy Waple, Daniel Alwine, Chuck Imbrogno, Abby Stark
- B. Michael Baker International – Max Heckman, Lu Ann May
- C. Moore Design Associates – Sara Moore, Marilyn Gelzhiser

II. Project Overview and Approach

Andy Waple provided a project overview, stating the project was first discussed a few years ago when there was concern about excessive traffic congestion and the expected increase in traffic associated with the completion of the Southern Beltway from SR 22 to I-79 in 2021. The northern Washington County area is expected to see continued development and increased traffic. The northern Washington County Corridor Based Transportation Plan will evaluate the study corridors and intersections within the Study Area and identify short-term and long-term improvements, identifying the least expensive improvements first and then the more expensive. The workshop is an opportunity to engage the public to identify and discuss transportation issues in the area, including possible trail connections, Park-n-Rides, transit routes, safety concerns, and congestion.

Max Heckman provided an overview of the technical elements of the study as described on the Study Overview exhibit.

III. Public Input

Attendees were encouraged to identify transportation issues through discussion with the project team at each of the meeting exhibits and by placing colored dots and post-it notes on the roll plots. Blue dots were used to identify bottleneck/congested areas and red dots were used to identify safety concerns. The following comments and locations were identified by the attendees:

Safety Concerns

- SR 19 @ Zerman Drive
 - Left turn from SR 19 N safety concern (rear-end crashes)
- Morganza Road @ Weavertown Road
- I-79 North and South @ Canonsburg (Exit 45) Exit Ramps at both interchanges
- Waterdam Road & Galley Drive (outside Study Area)
- Poor realignment of Morganza Road in connection with the Southern Beltway
 - Sharp curves and neighborhood dead ends
- Crosswalks along Racetrack Road with no sidewalks
- Turn lanes needed on McClelland Road at Demar Blvd and McDowell Lane

Bottleneck / Congestion Locations

- SR 19 congested in North Strabane and Peters Township, especially at noon and 5 pm
- SR 19 north of Valley Brook Road
- SR 19 near Center Church Road
- SR 19 @ Pleasant Ave
- SR 19 @ East McMurray / West McMurray Road (Donaldson Crossroads)
 - Identify alternative routes from SR 19
- SR 19 @ Weavertown Road
- SR 19 @ SR 519 / SR 980
 - Part of PennDOT TIP Project
- Morganza Rd @ W. McMurray Road
 - Congestion is already very bad and will likely get worse with Southern Beltway construction
 - Evaluate roundabout at this location
 - Existing rail crossing near intersection may make a roundabout difficult
- Morganza Rd @ Southpointe Blvd heavily congested with Southpointe traffic
 - Morganza Rd intersections at W McMurray and Southpointe effect each other
- Morganza Rd @ Centennial Drive
- SR 519 (Hill Church Houston Road) @ SR 980 backs up at peak hours
 - Part of PennDOT TIP project
- I-79 Houston (exit 43) exit ramps
 - Traffic backs onto I-79 and SR 519
 - PennDOT project currently evaluating SR 519
- I-79 Canonsburg Exit 45 at Peak Hour at both interchanges
 - Traffic backs onto I-79 and Weavertown Road
 - Traffic backs onto I-79 and McClelland Road
- Southpointe Blvd @ I-79 exit ramps (Congestion is growing at Southpointe)

Multimodal Connectivity

- Additional Park-n-Ride locations needed along I-79 North and South (Freedom Transit comment)
 - Suggested location on Morganza Road near Fawcett Church Road
 - Suggested location on Hill Church Houston Road near I-79
 - Evaluate demand for Park-n-Ride within Peters Township
 - Existing Southpointe Blvd Park-n-Ride needs maintenance
 - Existing PennDOT Park-n-Ride at SR 19 & SR 519 is under utilized and needs maintenance
- Transit improvements are the key to keeping everything flowing with the planned development in the area
- Sidewalks needed along Racetrack Road
 - Existing crosswalks but no sidewalks
- Improved connectivity between SR 19 and I-79 is needed
 - Evaluate upgrading and extending Georgetown Road to I-79
- Lack of transit service
 - Retailers leaving area because they are having trouble finding employees, may be due to lack of transit service
 - Lack of transportation for food service workers (SR 19 Dairy Queen)
- McDowell Lane one-lane bridge may become a problem in the future
- West McMurray most likely route to Southern Beltway (already very congested)

Signal Improvements

- SR 19 adaptive signals
 - Peters and North Strabane Study results should be implemented
- Add traffic signals at I-79 Canonsburg exit ramps
 - Signal at I-79 exit ramp @ McClelland Road
 - Has been discussed but some feel it would make the congestion worse, others think it would help alleviate congestion
- Evaluate adaptive signals along Southpointe Blvd

Deficiencies

- Georgetown Road has limited capacity, needs upgraded
 - Railroad underpass has limited capacity and sharp curve
- Southern Beltway realignment of Morganza Road is a poor design, limiting access by local residents
- Stormwater and Creek flooding along Morganza Road near Baker Road, concerned it will worsen with Southern Beltway construction
- Existing creek could limit improvements at Morganza Road and Southpointe Blvd
- Realign and upgrade Morganza Road to increase capacity
- Waterdam Road
 - Waterdam Road @ Galley Road is dangerous intersection
 - Waterdam is primary connector to SR 19, Galley Road is also connector road
 - Waterdam Road has high truck traffic, study needed

Proposed Development

- Proposed development along Racetrack Road to the east of Tanger Outlets
- Sewer and water (84") under construction north of Racetrack Road, west of the Meadows, near McBride Rd and Meadowbrook Rd
- Residential (1000 +) development in North Strabane west of SR 19 near Mansfield Road
- Residential development in North Strabane west of SR 19, north of Lindley Road
- North Strabane development is on the rise due to Peters Township built out
- Residential townhome development (~200) west of SR 19 off of Bayberry Drive
- Two new developments in North Strabane west of SR 19 and south of McDowell Road
- Peters Township High School and Stadium on E McMurray Road
- Coal Valley Phase II includes transportation improvements
 - Signalize and add turn lanes at Morganza Rd and Lewicki Rd
 - Add Turning Lanes at Moraganza Rd and Southpointe Blvd
 - Signalize Southpointe Blvd @ I-79 N off ramp

Funding Sources

- Evaluate implementing North Strabane Traffic Impact Fees

Northern Washington County Corridor Based Transportation Plan

Draft Meeting Summary

Steering Committee Meeting No. 2 | August 1, 2018 | 1:00 PM – 3:00 PM

Chartiers Township Municipal Building, 2 Buccaneer Drive, Houston, PA

Attendees

See attached sign-in sheet

Meeting Materials

- Agenda
- Presentation
- Study Area Roll Plots

Meeting Purpose

To review the results of the traffic analysis, safety concerns and operational needs. We will also discuss and agree on the ten locations where we will perform conceptual engineering. The following is a summary of the meeting discussion.

I. Welcome / Introductions

- SPC – Andy Waple, Daniel Alwine, Chuck Imbrogno
- Michael Baker International – Max Heckman, Lu Ann May
- Lochner Inc. – Kelly Rigot
- Markosky Engineering Group– Jon Balko
- Moore Design Associates – Marilyn Gelzhiser

II. Agenda

Andy Waple thanked everyone for coming and reviewed the purpose of the meeting.

Max Heckman reviewed today's agenda. Max added that the purpose of today's meeting is to review the study results to date and get the stakeholders input on the ten key locations where conceptual engineering will be performed.

III. Project Overview

Max reviewed the study purpose and the intersections and corridors that were analyzed as part of the project. Based on the input from the stakeholders and SPC, the Goals and Objectives identified for the study were reviewed. Max reviewed the steps of the Study Process and our current status for each. The next steps will include evaluating mobility and accessibility, recommending short-term and long-term improvement projects, and identifying potential funding sources and strategies.

IV. Stakeholder and Public Input

An exhibit showing the locations that the stakeholders and public identified as locations of concern was reviewed. The locations were categorized by congestion, recommended ParkNRide locations, safety concerns, signalization needed, pedestrian and transit needs and connectivity issues.



V. Existing Conditions

Max then reviewed the results of the existing conditions analysis for operations and safety.

Existing Level of Service

A level of service (LOS) analysis was completed for the existing condition for the identified signalized intersections. Level of Service is a qualitative measure of user delay. Levels of service range between A (relatively congestion-free) to F (congested). In a suburban / urban area, LOS D and higher are considered acceptable. Max reviewed the exhibit showing the AM and PM LOS with eight locations experiencing a LOS of E or F, or unacceptable LOS.

Safety Concerns

A safety analysis of crash data for a five-year period was performed. An exhibit showing the fifteen locations with the highest number of crashes was reviewed. The crashes at those locations were further analyzed and categorized by type of safety concern, congestion, geometrics and unsignalized intersections. Most of the safety concerns are located along US 19 at unsignalized intersections or signalized intersections that experience congestion. Unsignalized intersection safety concerns are generally due to lack of turning lanes and poor sight distances from overgrown trees, vegetation and hillsides.

Jon Balko discussed two locations on SR 18 that were identified by stakeholders as safety concerns due to poor geometry and sight distance issues at stop sign.

Angela Saunders, PennDOT District 12-0, noted an unfunded project has been identified for SR 18 improvements. Low cost safety improvements could be included with that project.

VI. Future Conditions

Max then reviewed the results of the future (2040) conditions analysis.

Existing and Future Traffic Volumes

SPC's travel demand model was used to project traffic volumes for the year 2040. The traffic volumes at key locations within the study area are expected to increase between 10-36%. US 19 shows the lowest growth because it is currently at capacity and nearly built out. Morganza Road and Southpointe Boulevard are expected to see a significant increase due to the Southern Beltway and Coal Valley projects. The growth rates generally are higher compared to typical western Pennsylvania growth rate averages.

Future Level of Service

A future Level of Service (LOS) analysis was completed for the signalized intersections for the year 2040. There are twenty-one locations experiencing a LOS of E or F, or unacceptable LOS, in either the AM or PM peak.

VII. Safety Concerns and Operational Needs

Safety Concerns

The locations discussed as safety concerns were further analyzed to identify potential improvement strategies.

Jon discussed possible geometric improvement strategies for the SR 18 locations including signing, pavement markings, delineation, flashing warning devices, and dedicated lighting. Access management techniques such as adding a curb along the gas station driveway were discussed. Long term improvements could include realignment and flattening of the curves but would result in higher costs and impacts.

Max discussed possible unsignalized intersection mitigation strategies primarily for locations along US 19. These safety strategies should be implemented as a corridor wide strategy to restrict turning movements such as left turns. Additional analysis would be required to look at the network for nearby signals where the restricted turns could take place. Other strategies discussed included tree trimming or vertical realignment to improve sight

distances. Access management strategies could be evaluated including intersection spacing (restrict left turns), reducing the number of driveways (i.e. Donaldson's Crossroads), median treatments (i.e. barriers), turn lanes (i.e. jughandles) and auxiliary lanes (i.e. frontage roads). Max requested input from the stakeholders on these strategies that should be considered for the US 19 corridor.

Operational Needs

Locations identified with poor LOS were further evaluated to identify the improvements that would be needed to bring LOS to an acceptable level. The presentation reviewed each location showing the existing condition on the left side of the slide and improvements needed to improve operations on the right side of the slide. Each location was discussed by the project team. See the presentation for conceptual improvements at each location. Highlights of the discussion follows:

US 19

- A project to evaluate adaptive signals along US 19 is being negotiated with the consultant for Preliminary Engineering and should be completed within the next two years.
- Adaptive signals should help with the stop and go traffic contributing to safety issues experienced on US 19.
- Transit improvements on US 19 will be evaluated during the next steps. Bus pull-off areas would be desirable along with pedestrian improvements.
- The conceptual improvements needed to get US 19 to an acceptable LOS are often not feasible due to limited ROW. When additional turning lanes are needed, receiving lanes on the side roads would also be needed but often not feasible.
- Narrowing of existing lanes could be evaluated for reducing additional right of way needed for the needed additional lanes
- US 19 from McMurray Road to McDowell Lane should be evaluated as a corridor improvement. Possible considerations include adding a median, jughandles, restricting left turns, a new C-D road behind the shopping centers to connect them without needing to access US 19. PennDOT agreed with evaluating those improvements.

McClelland Road / Weavertown Road to I-79

- Need for an East / West connector, current conditions are poor. Evaluate as possible connectors and as corridor wide improvements.
- PennDOT recently completed a study of SR 1023 (McClelland Road) to I-79. PennDOT District 11-0 will provide the name of the Project Manager to get a copy of the study.
- New housing development is planned along SR 1023 (McClelland Road) off of Greenwood Drive
- I-79 will have an additional lane north of Southpointe Blvd. as part of the Southern Beltway project by 2022
- Cemetery located along Weavertown restricts improvements. Consider new connector road to remove traffic from Weavertown. Connector road could improve operations on Morganza Road also.
- PennDOT study to improve SR 519 (Hill Church Houston Road) could help alleviate congestion on Weavertown. Request copy of study.

Morganza Road (SR 1009)

- Coal Valley improvements include improvements to Morganza and Southpointe Boulevard. PennDOT hasn't seen the updated Traffic Impact Study.
- Southern Beltway project proposes a roundabout near Morganza Road and Morgan Rd / Baker Rd

- Morganza Road / Southpointe Boulevard (1009-09) currently has a no right turn on red. PennDOT is unsure of the reason for the no right turn and recommended looking at phasing of light with left turns and channelization of right turn.

Southpointe Boulevard

- Southern Beltway included an East / West connector near Southpointe Boulevard but it was dropped
- Turnpike early EIS could be a good source of information

McMurray Road

- Should be considered as corridor improvements between US 19 and Morganza Road
- Possible upgrades to McMurray Road to provide an East / West connector

Racetrack Road

- Low cost improvement at Racetrack Road and US 19 could include restriping to make a shared left turn lane instead of adding an additional lane.
- Sidewalk improvements along Racetrack Road will be evaluated during the next steps

SR 18

- Does not meet requirements for a signal. All way stop would help. Warrant for all way stop will be evaluated.

VIII. Recommended Locations for Conceptual Engineering

Max presented the recommended locations to perform conceptual engineering. The engineering will drive the costs for improvements.

Max asked the stakeholders if there are any other locations that are more important to consider than the ones discussed above. It was suggested to evaluate McMurray Road as a corridor instead of just the intersections at US 19 and Morganza Road, which is reflected below.

1. US 19 Corridor from Old Oak Road to Waterdam Road
 - Evaluate restricting turns for safety improvements
 - Evaluate possible connector road between shopping centers
2. US 19 Northern Corridor from county line to Old Oak Road
 - Evaluate unsignalized crash locations for safety improvements
3. US 19 Southern Corridor from Linden Road to Racetrack Road
 - Evaluate unsignalized crash locations for safety improvements
4. Southpointe Boulevard from I-79 to Morganza Road
 - Evaluate widening to four lanes
5. McMurray Road Corridor between US 19 and Morganza Road
 - Expanded from just intersection of Morganza Road and McMurray Road
6. McClelland Road Corridor from US 19 to Morganza Road, US 19 between McClelland Road and Weavertown Road and Morganza Road between McClelland Road and Weavertown Road
 - Evaluate improvements for better East / West connector
 - Evaluate a new connector road between McClelland and Weavertown
 - Add full interchanges at each separated I-79 exit won't get approved because they are too close together

7. Weavertown Road Corridor from US 19 to Morganza Road
 - Evaluate improvements for better East / West connector
8. SR 18 (Burgettstown Road) and SR 50 (Hickory Road) (0018-01)
 - Evaluate safety and operational improvements
9. SR 18 (Henderson Road) and SR 50 (Avella Road) (0018-02)
 - Evaluate safety improvements
10. SR 980 and OHare Road (0980-0090)
 - Evaluate safety improvements

IX. Mobility Analysis

Max discussed the mobility analysis done to date. An origin and destination analysis was done using StreetLight data which is anonymous trip data collected from cell phone signals. Additional analysis will be done during next steps to evaluate mobility and accessibility. The preliminary results show that a connector road could be beneficial.

X. Next Steps

- Identify feasible improvements and estimated costs
- Evaluate Multimodal improvements including pedestrian connections and transit
- Funding options
 - PennDOT recommended townships charge impact fees to developers to help fund needed improvements. They added that Peters has a good program that has really helped and can be used as an example for other townships.
 - Township stakeholders responded that the costs to perform the study to implement fees is too costly.
 - PennDOT added that township matching funds through impact fees make a project more attractive
 - Competitive funding – PennDOT warned Federal funding has extensive requirements and restrictions that could make a project more costly. Consider carefully before applying for federal funds.
 - Making improvements in conjunction with an existing PennDOT project is a good approach (i.e. SR 18 safety improvements)
- Public Workshop (September)

Andy concluded the workshop by asking the stakeholders to provide comments on the presentation, conceptual improvements and recommended locations for conceptual engineering within the next two weeks.



**Southwestern Pennsylvania Commission (SPC)
Northern Washington County Corridor Based Transportation Plan
Steering Committee Meeting No. 2**

**Michael Baker
INTERNATIONAL**

August 1, 2018

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Meeting Agenda

Northern Washington County Corridor Based Transportation Plan Stakeholder Workshop #2

August 1, 2018

Chartiers Township Municipal Building, 2 Buccaneer Drive, Houston, PA 15342

Project Overview

- Study Purpose
- Study Intersections and Corridors
- Goals and Objectives
- Study Process

Stakeholder and Public Input

- Map of identified issues

Existing Conditions

- Existing Capacity Analysis
- Safety Concerns

Future Conditions

- Existing and Future Traffic
- Future Capacity Analysis

Safety Concerns and Operational Needs

- Safety Concerns
- Operational Needs

Recommended Locations for Conceptual Engineering

- Recommended Locations

Mobility Analysis

- Origin / Destination Analysis

Next Steps

- Conceptual Engineering
- Multimodal Improvements
- Estimated Cost and Financing Options
- Public workshop





Northern Washington County Corridor Based Transportation Plan

STAKEHOLDER WORKSHOP

August 1, 2018

Agenda

Project Overview

Stakeholder and Public Input

Existing Conditions

Future Conditions

Safety Concerns and Operational Needs

Recommended Locations for Conceptual Engineering

Mobility Analysis

Next Steps

An aerial photograph of a suburban area, showing a road, houses, and green spaces. The image is in grayscale and serves as a background for the text.

Project Overview

Study Purpose

Study Intersections and Corridors

Goals and Objectives

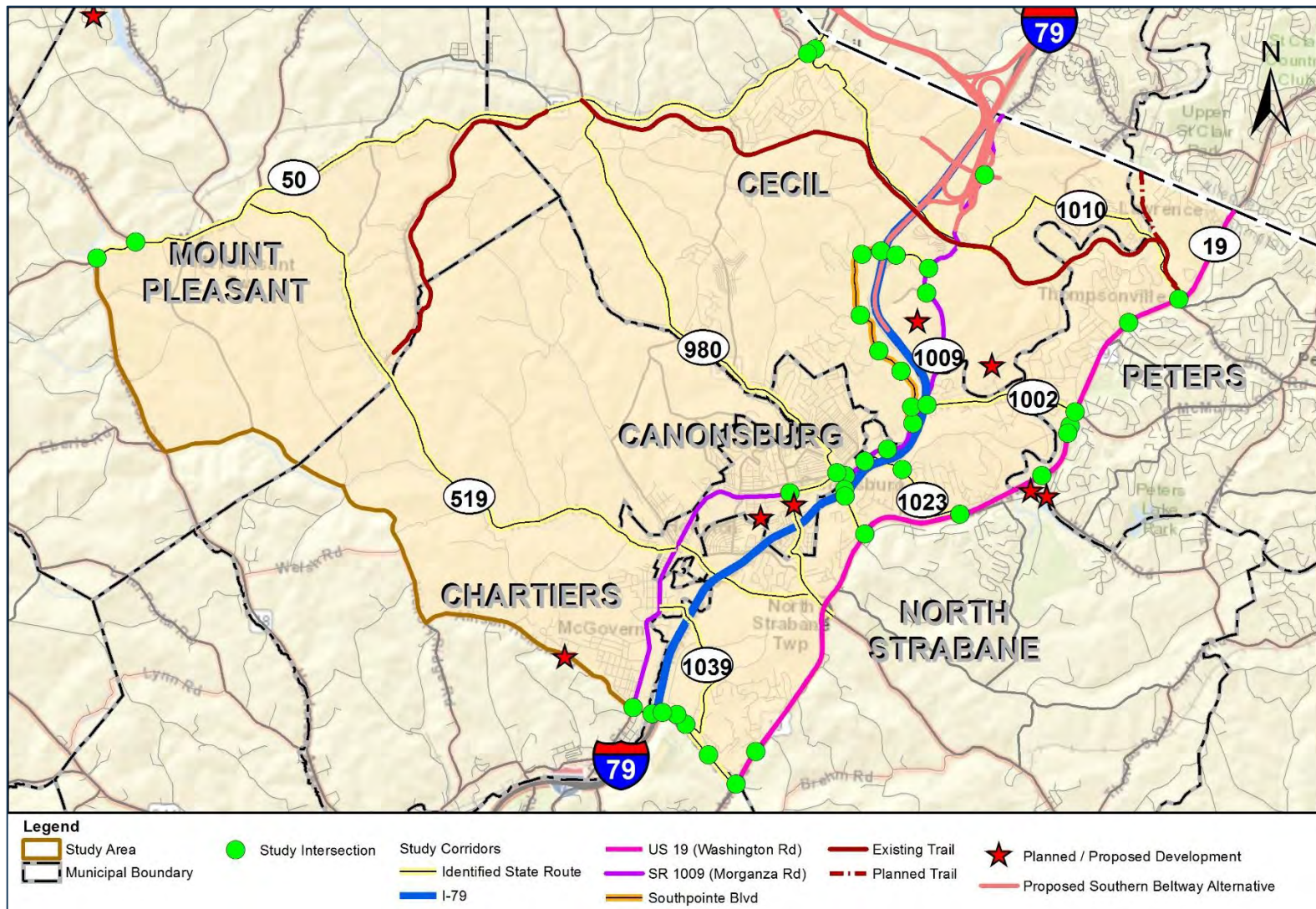
Study Process

Project Overview

STUDY PURPOSE

Evaluate the study corridors and intersections within the Study Area to identify short-term and long-term improvements that satisfy the goals and objectives of the Study.

Project Overview



Project Overview

GOALS AND OBJECTIVES

- Improve Safety
- Reduce Congestion
- Improve Connectivity
- Mitigate Deficiencies
- Integrate Signal Improvements
- Identify Funding Options

Project Overview

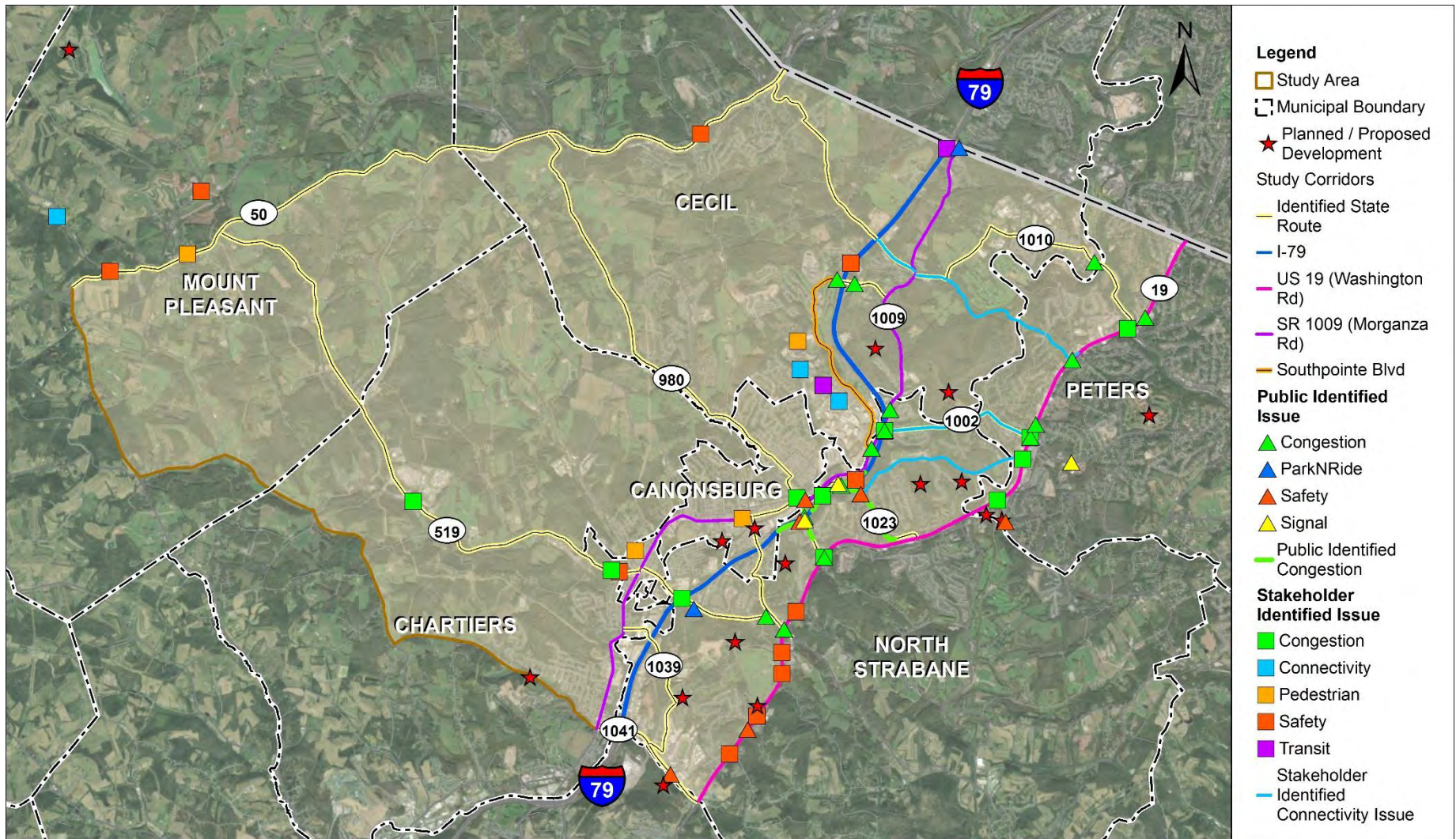
STUDY PROCESS

- Analyze existing and future conditions
- Evaluate Mobility and Accessibility
- Identify Safety Concerns
- Recommend short-term and long-term improvement projects
- Identify potential funding sources and strategies

An aerial photograph of a suburban neighborhood, showing a network of roads, residential buildings, and green spaces. The image is in grayscale and serves as a background for the text.

Stakeholder and Public Input

Stakeholder and Public Input

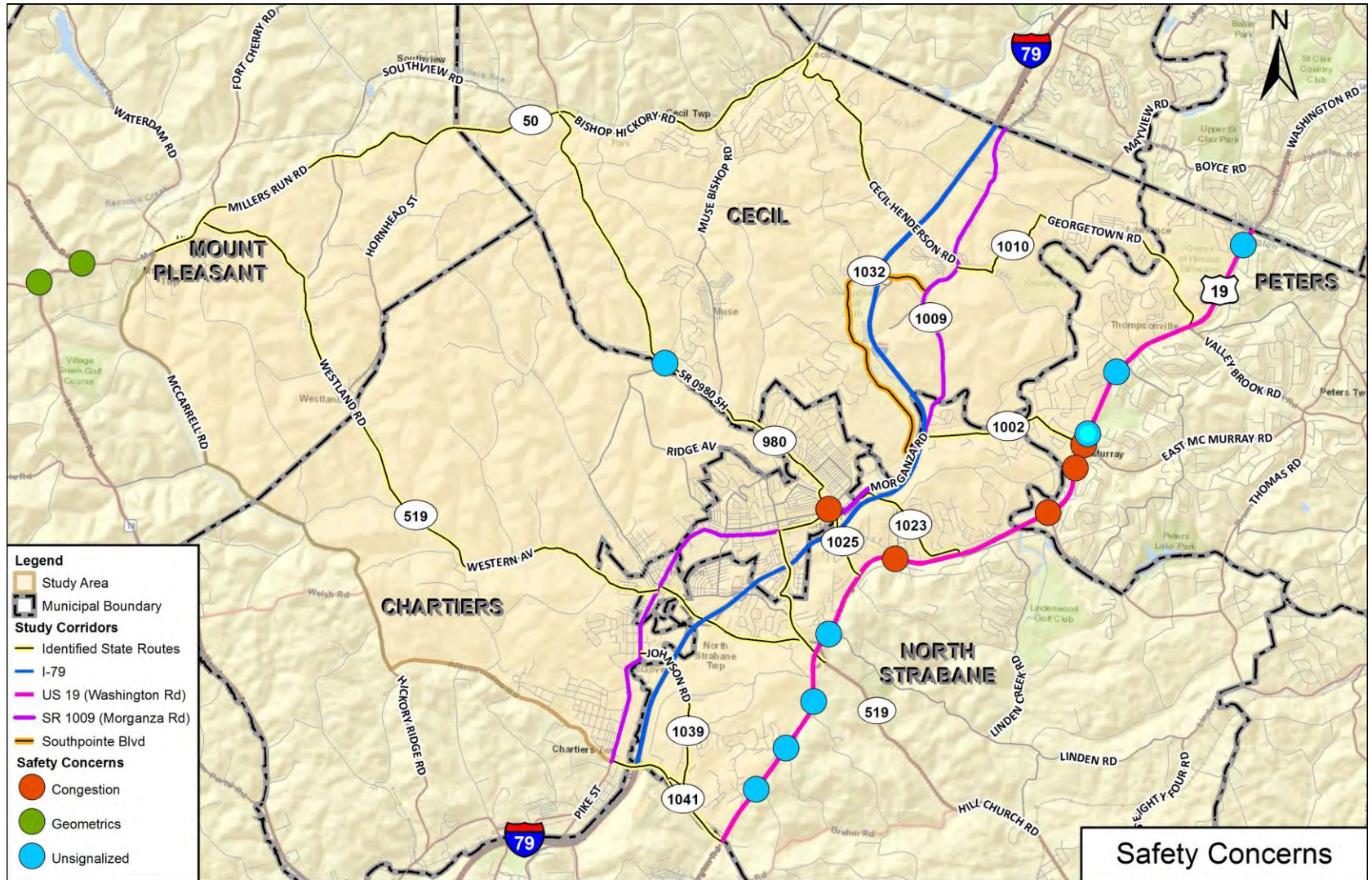


An aerial photograph of a highway interchange and surrounding residential area. The highway is a multi-lane road that curves through the center of the image. The surrounding area is densely packed with houses and streets, with some larger commercial buildings visible. The overall scene is a typical suburban or urban landscape.

Existing Conditions

Capacity Analysis
Safety Concerns

Safety Concerns



Safety Concerns - Unsignalized

- 7 locations along US 19 & 1 location on SR 980
- Unsignalized Intersections
- No Turn Lanes
- Sight Distances



Safety Concerns - Geometrics

SR 18 (Burgettstown Road) & US 50 / SR 18



An aerial photograph of a highway interchange and surrounding residential areas. The highway is a multi-lane road that curves through the center of the image. The surrounding area is filled with residential streets, houses, and some commercial buildings. The overall scene is a typical suburban or urban landscape.

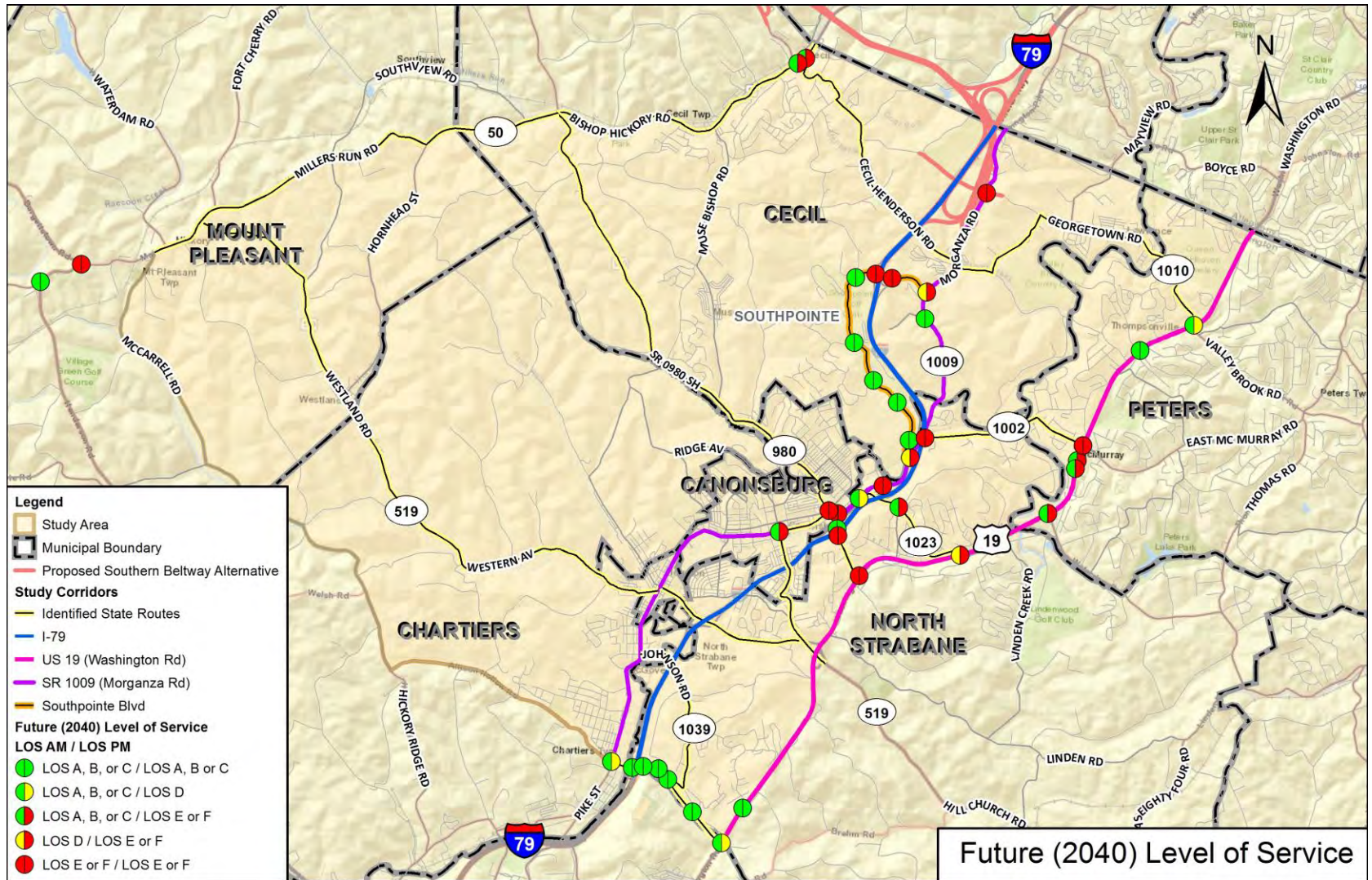
Future Conditions

Existing and Future Traffic Volumes
Future Capacity Analysis

Existing and Future Traffic Volumes

Road	2018	2040	Difference	% Change
SR 50	7,790	10,040	+2,250	29%
US 19	24,060	26,570	+2,510	10%
Morganza Road	11,150	13,580	+2,430	22%
West McMurray Road	13,460	14,870	+1,410	10%
Weavertown Road	16,000	18,390	+2,390	15%
I-79 SB Off-Ramp at Southpointe Blvd	9,790	13,330	+3,540	36%
Southpointe Boulevard	13,620	18,540	+4,920	36%
Racetrack Road	13,920	17,740	+3,820	27%

Future Level of Service



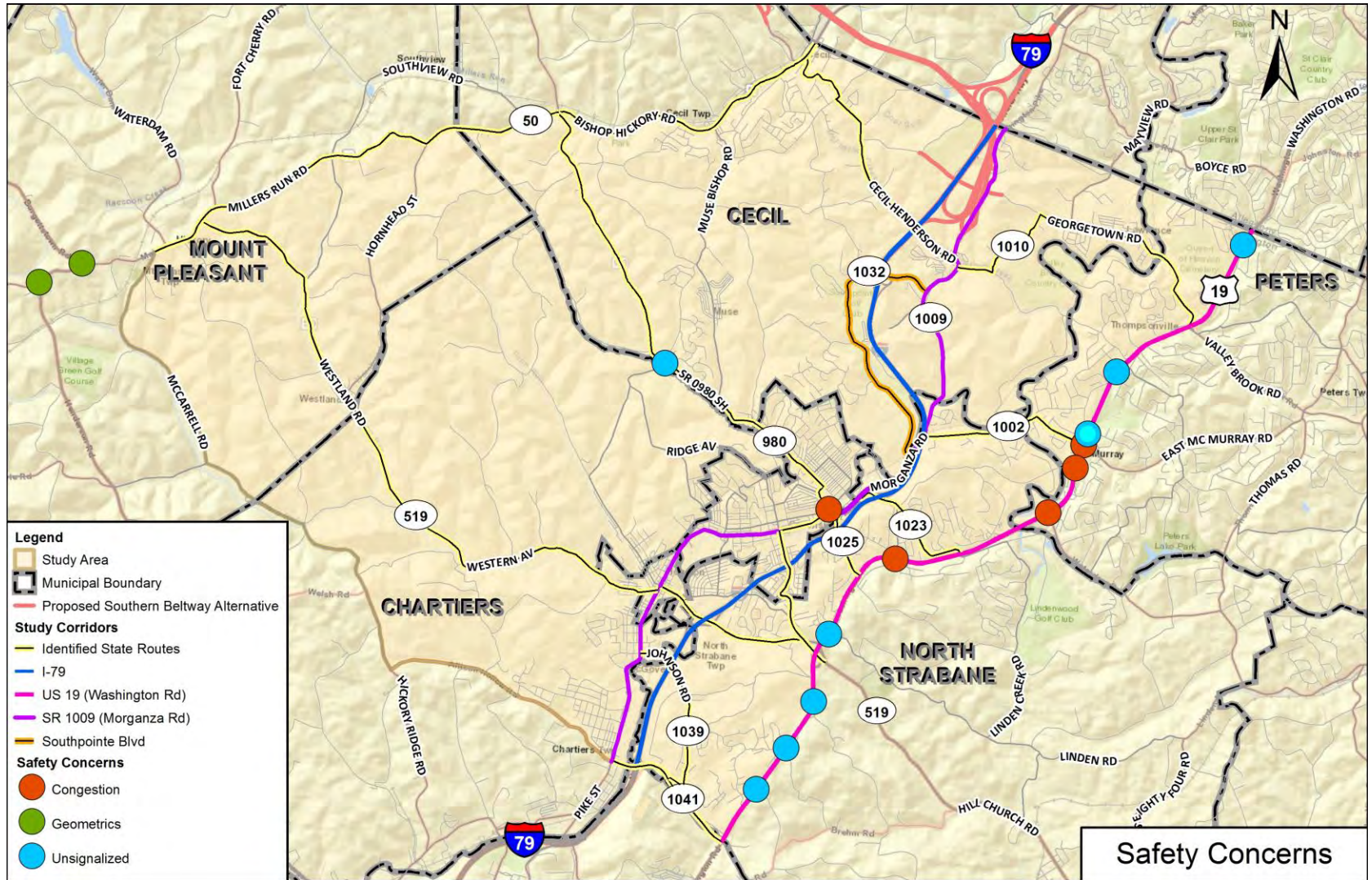
An aerial, grayscale photograph of a city. A wide river flows through the center, with a multi-lane highway running parallel to it. The surrounding area is densely packed with residential streets and buildings.

Safety Concerns and Operational Needs

Safety Concerns

Operational Needs

Safety Concerns



Safety Concerns

GEOMETRIC IMPROVEMENT STRATEGIES:

- Low cost safety improvements
 - Signing and pavement markings
 - Delineation
 - Flashing Warning Devices
 - Intersection lighting
 - Access Management
- Potential Realignment

**SR 18 (Henderson Road) &
SR 18 (Avella Road)**



**SR 50 (Main Street) &
SR 18 (Burgettstown Road)**



Safety Concerns

UNSIGNALIZED INTERSECTION MITIGATION STRATEGIES:

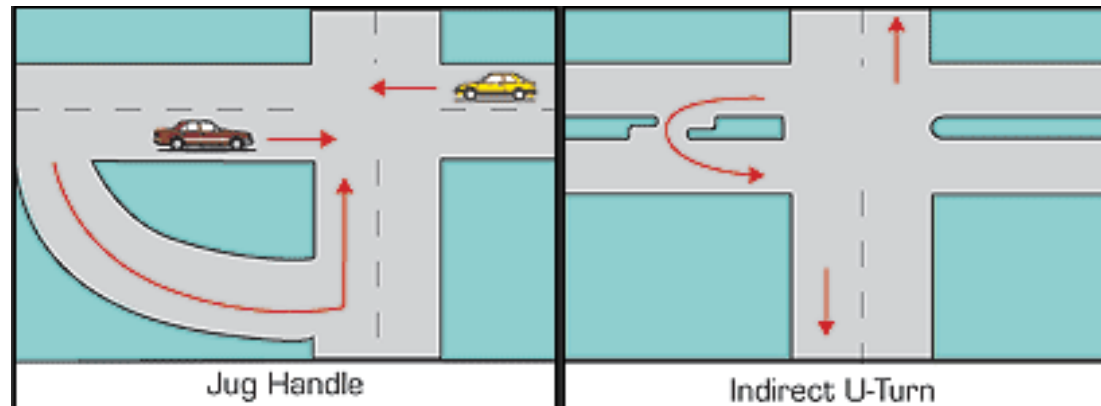
- Restricting turning movements
- Tree trimming
- Access Management Strategies



Safety Concerns

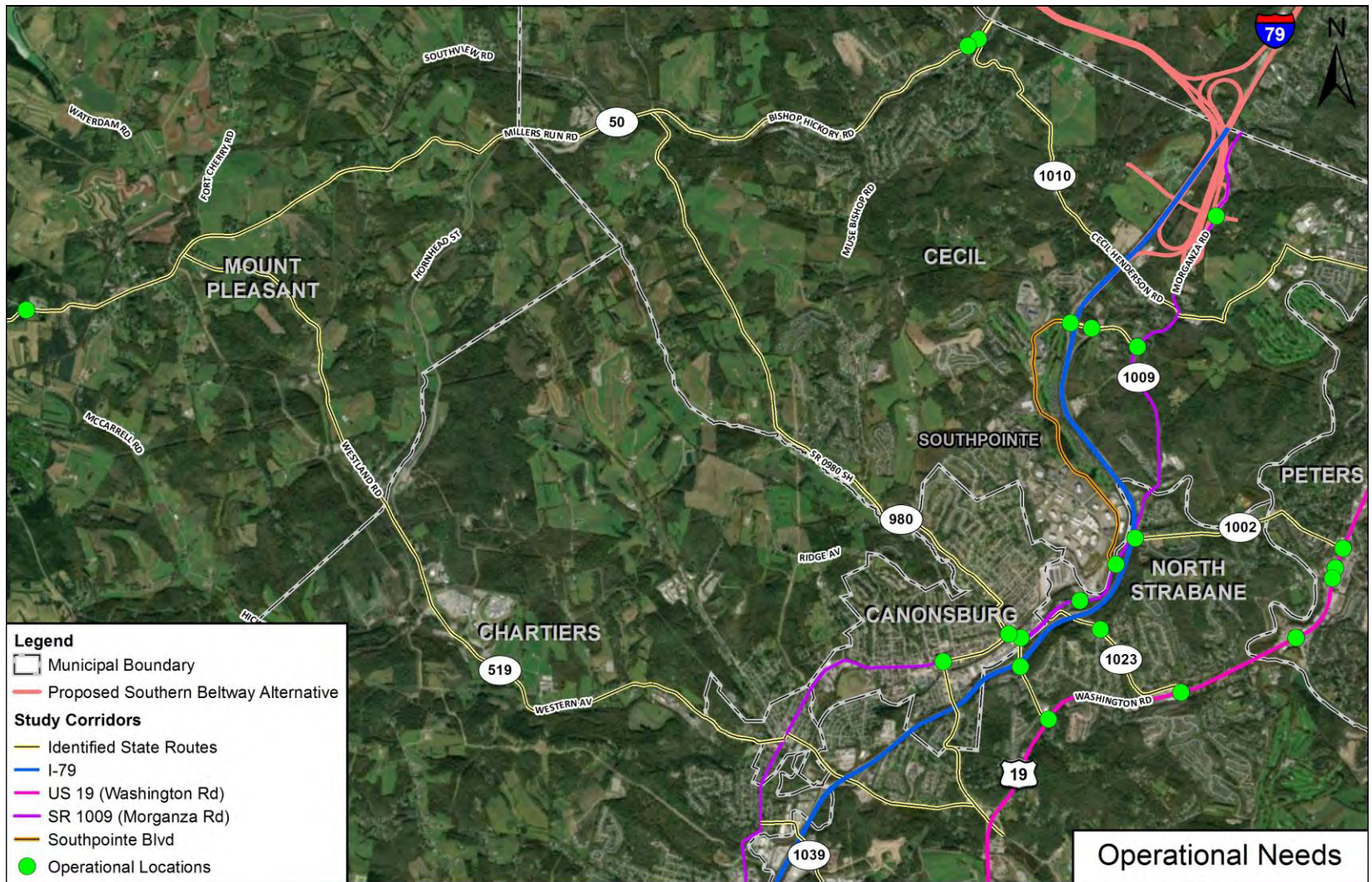
ACCESS MANAGEMENT STRATEGIES:

- Intersection Spacing
- Driveway Spacing
- Traffic Signal Spacing
- Median Treatments and Median Openings
- Turning Lanes and Auxiliary Lanes
- Street Connections such as Frontage Roads or Collector Distributors

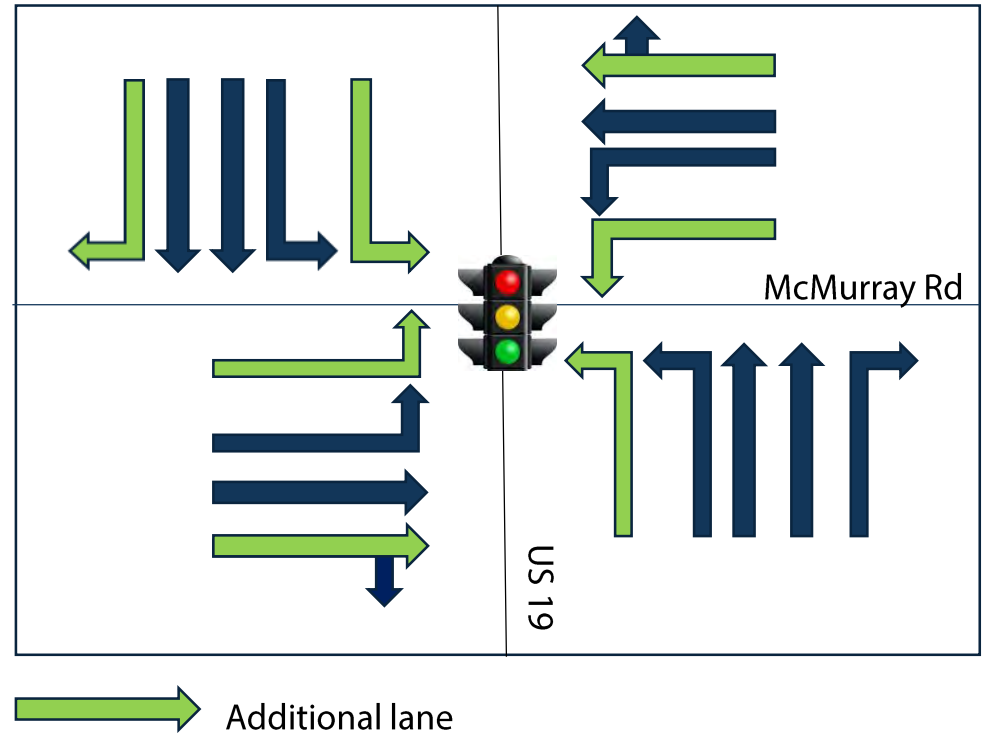


Slide 23

Operational Needs



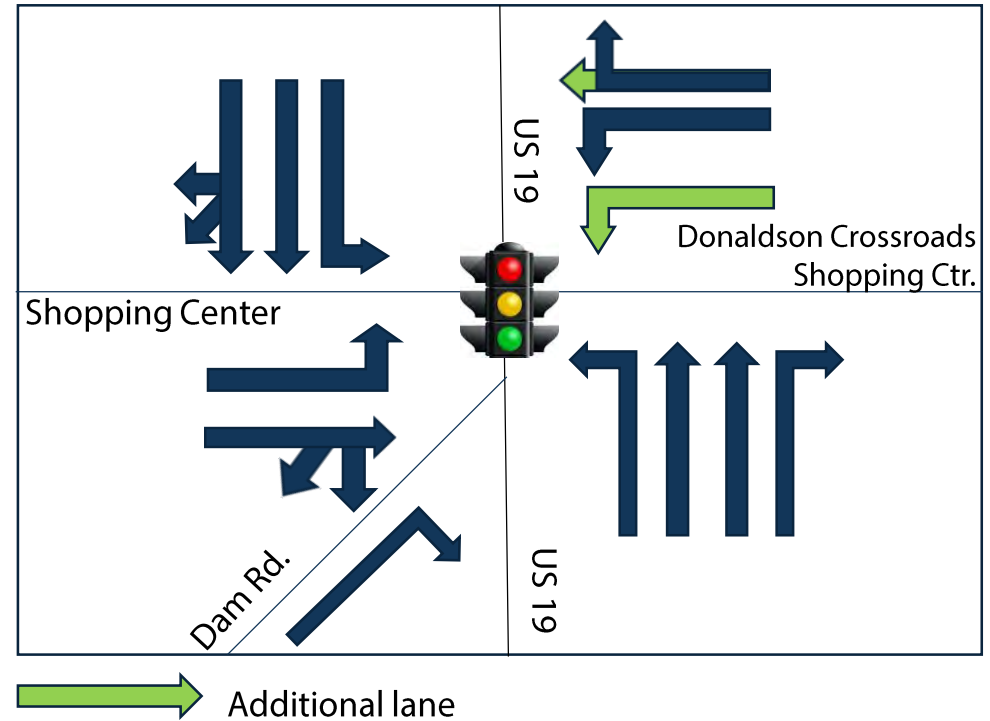
Washington Rd (US 19) / McMurray Road (SR 1002) (0019-07)



Notes/Concerns:

- Removed split phasing. Widening for only EB and WB dual turn lanes helps, but not enough.
- Dual NB and SB lefts then require additional receiving lanes.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

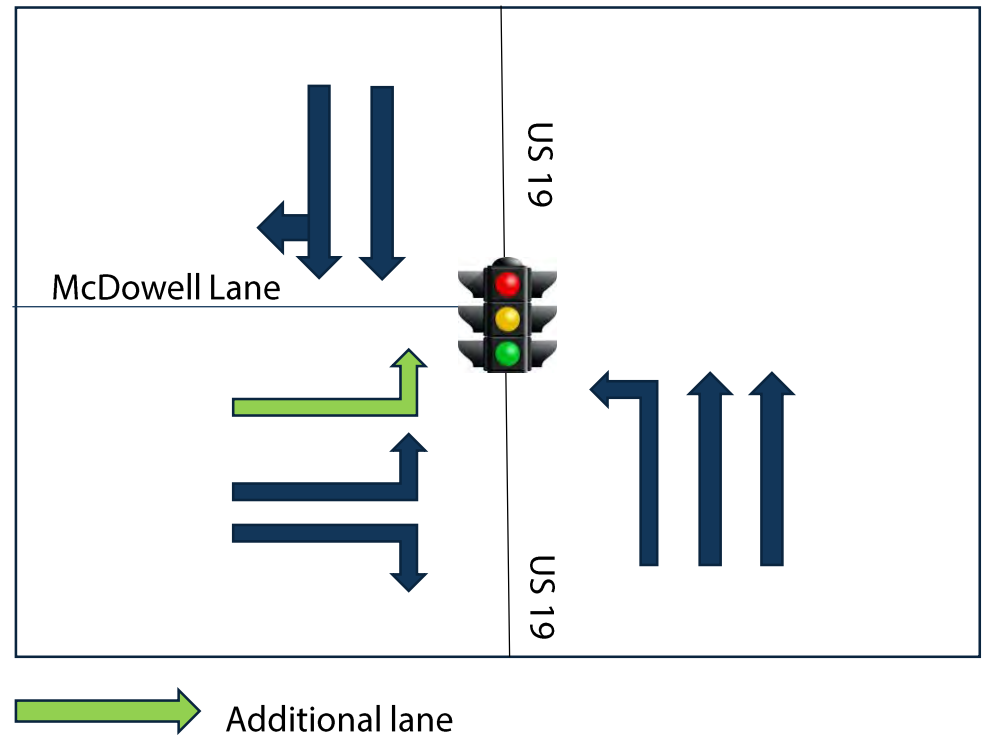
Washington Road (US 19) / Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)



Notes/Concerns:

- Left cluster with signal at McDowell Lane due to 300' separation.
- Able to reach acceptable overall LOS, however with WB Approach still E (PM).
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

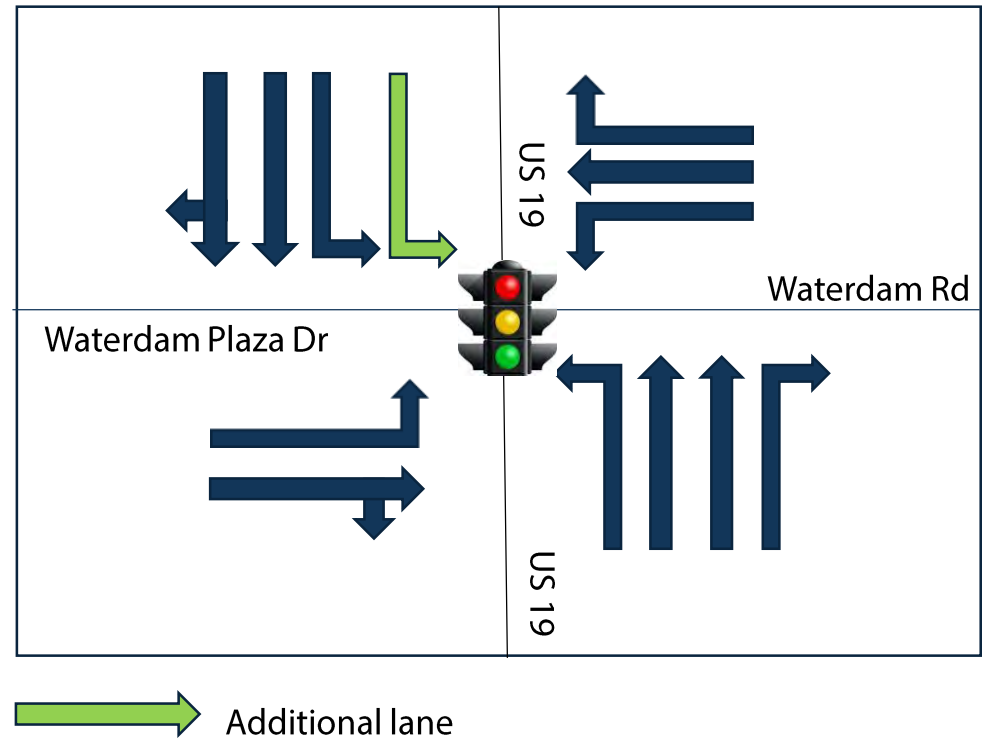
Washington Road (US 19) / McDowell Lane (0019-09)



Notes/Concerns:

- Left cluster with signal at Donaldson Crossroads due to 300' separation.
- Able to reach acceptable overall LOS, however with NB Approach still E (PM).
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

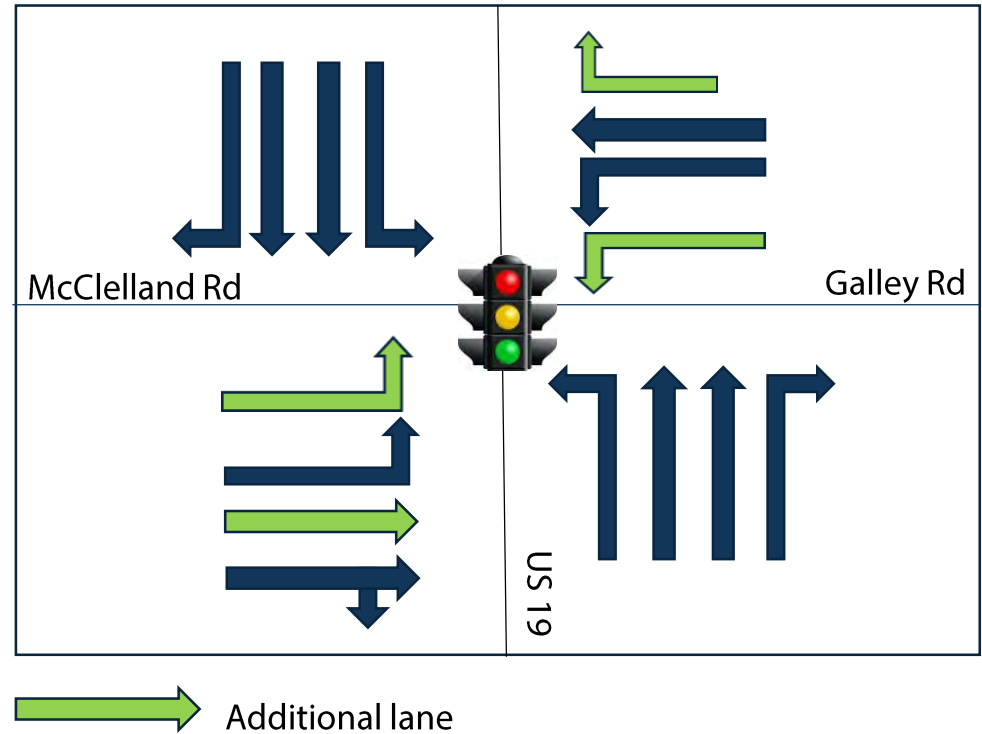
Waterdam Plaza Drive/Waterdam Road (SR 1053) / Washington Road (US 19) (0019-11)



Notes/Concerns:

- Similar to previous intersections. Some additional capacity helps reach acceptable LOS, but with WB movement borderline E (PM).
- Dual SB lefts then require additional receiving lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

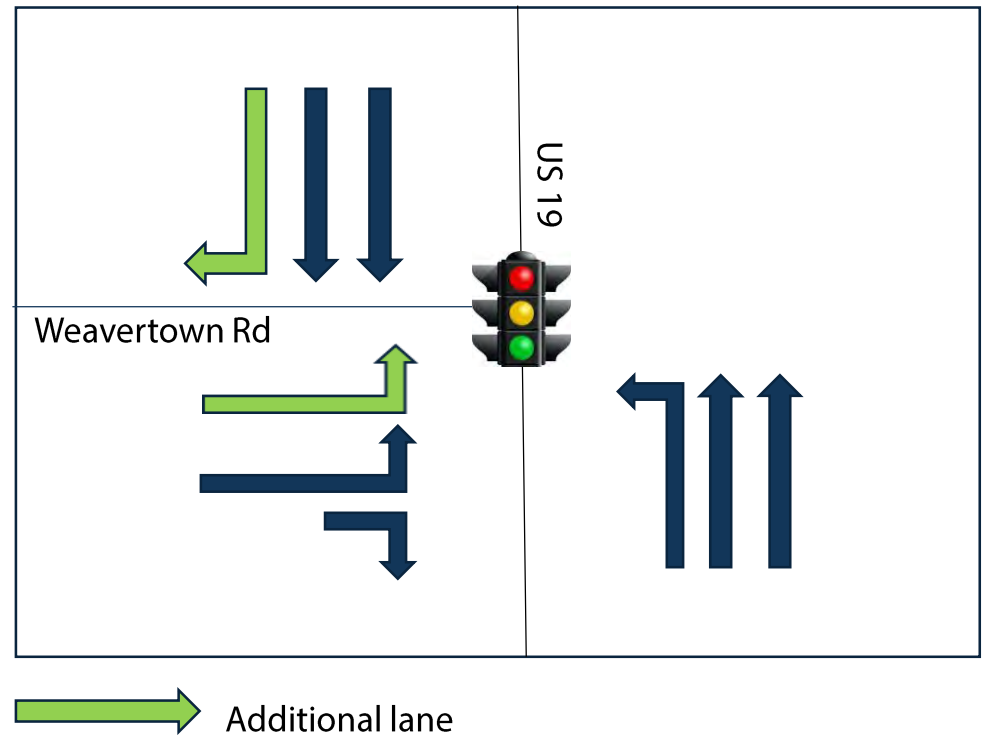
Galley Rd. (SR 1023)/McClelland Rd. (SR 1023) / Washington Road (US 19) (0019-12)



Notes/Concerns:

- EB and WB dual lefts help significantly, but all improvements really necessary for acceptable levels of service. Additional thru requires additional receiving lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.
- Benefits possible connector road from US 19 to I-79

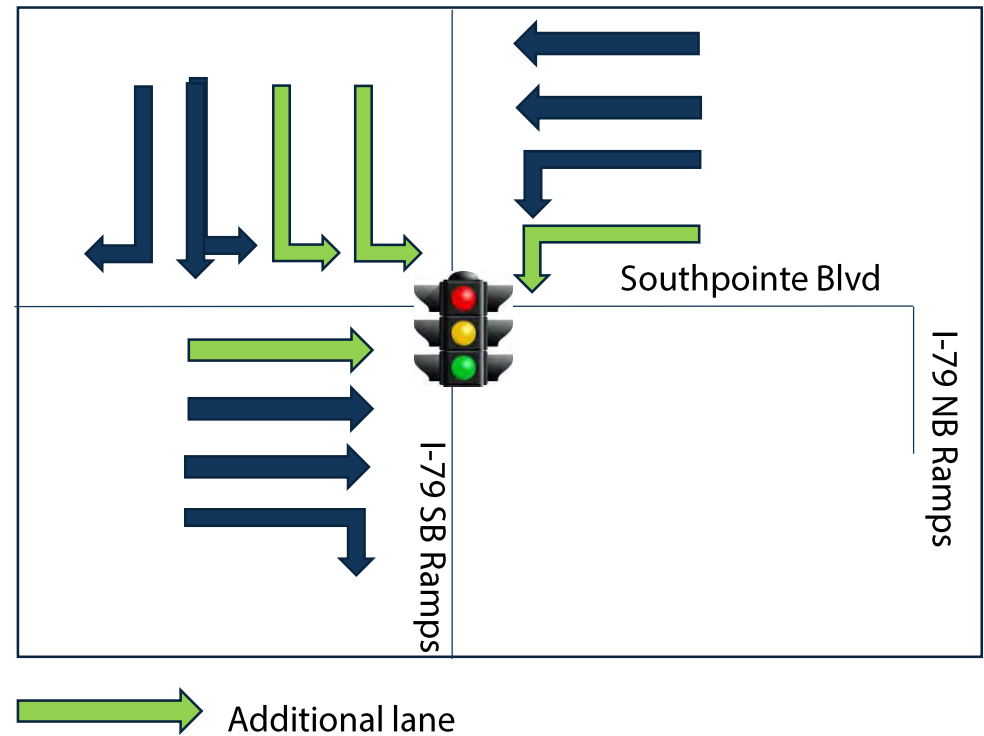
Washington Road (US 19) / Weavertown Rd. (SR 1025) (0019-14)



Notes/Concerns:

- Major movement is dual lefts which would require significant storage. Existing EB right is small widening at the intersection and not true turn lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

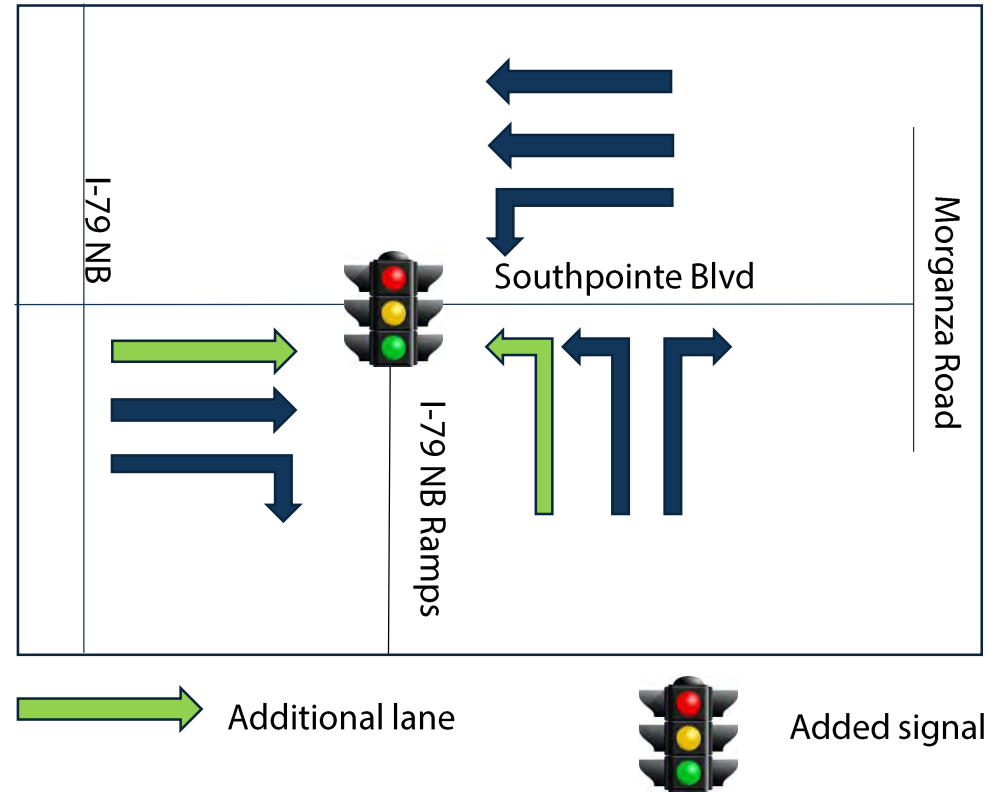
Southpointe Blvd / I-79 SB Ramps (1032-02)



Notes/Concerns:

- Provide an additional EB thru lane and an additional WB left turn lane
- SB approach, two additional left turn lanes to relieve congestion on ramp
- Provide an additional lane for the SB I-79 On-Ramp

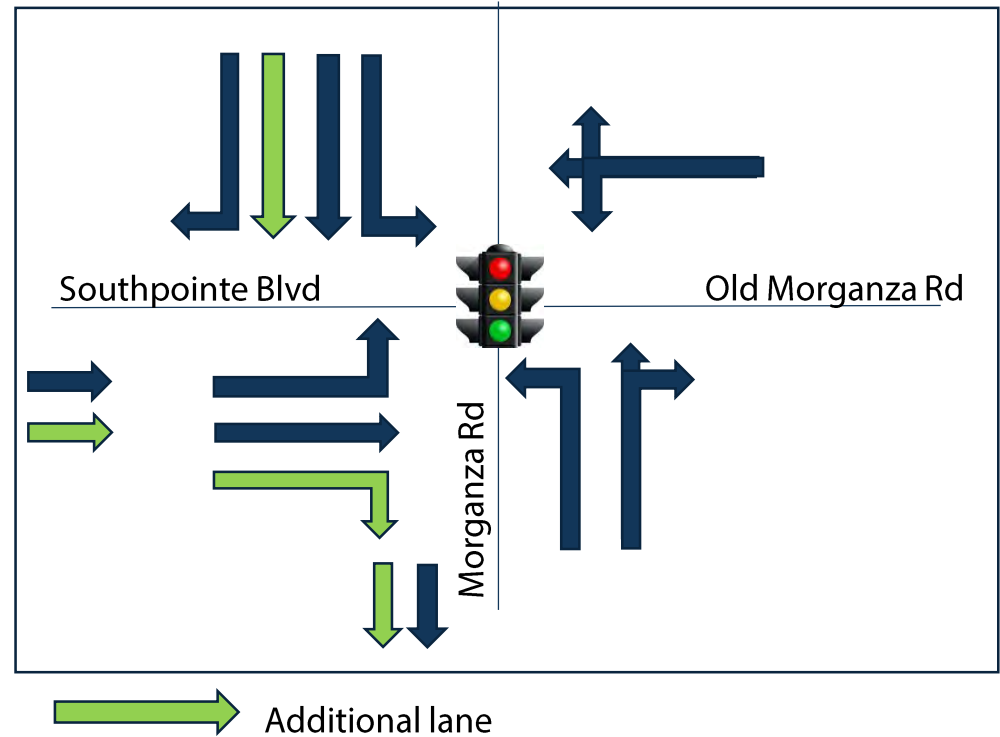
Southpointe Blvd / I-79 NB Ramps (1032-01)



Notes/Concerns:

- Provide 1 additional lane in each direction between ramp and Morganza Road
- Right turn onto ramp becomes an additional lane
- On-ramp to I-79 is only a single lane ramp

Morganza Rd and Southpointe Blvd/Old Morganza Rd (1009-05)



Notes/Concerns:

- SB channelized right continues as an additional lane to the I-79 interchange
- Additional lane from the I-79 interchange becomes an additional EB approach lane
 - EB Lane Arrangement: dedicated left, dedicated thru, dedicated right
- One additional receiving lane on the NB approach to handle the two SB thru lanes

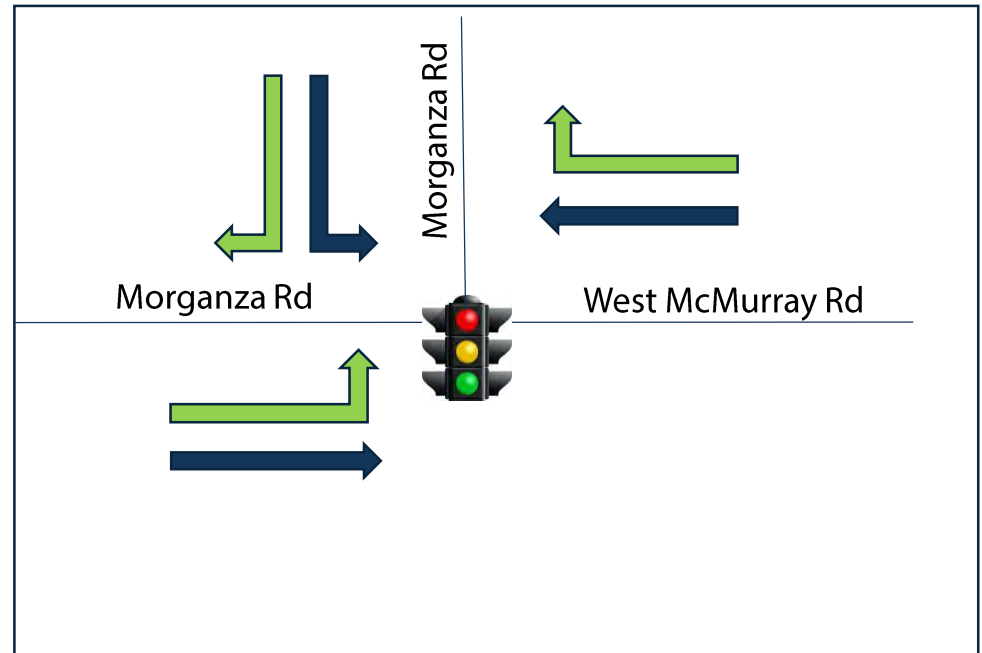
Morganza Rd and Morgan Rd/Baker Rd (1009-02)



Notes/Concerns:

- Improvements planned as part of the Southern Beltway project

Morganza Rd/West McMurray Rd (1009-08)



Additional lane

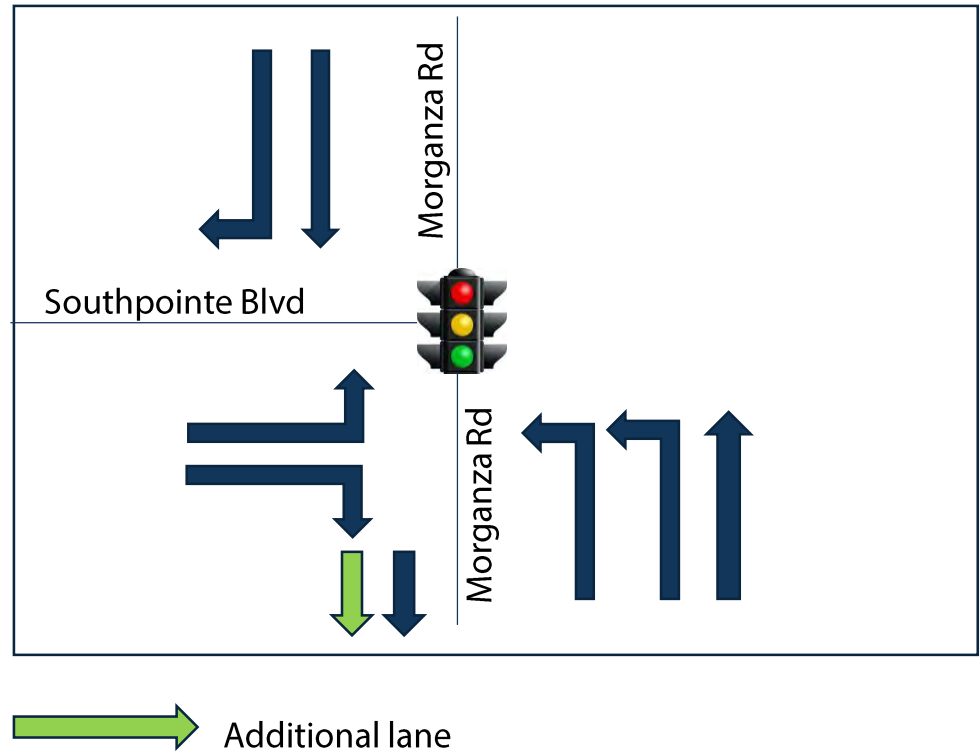


Added signal

Notes/Concerns:

- Intersection meets warrants for an actuated signal system at this location
- Additional turn lane with 150' of storage on all approaches

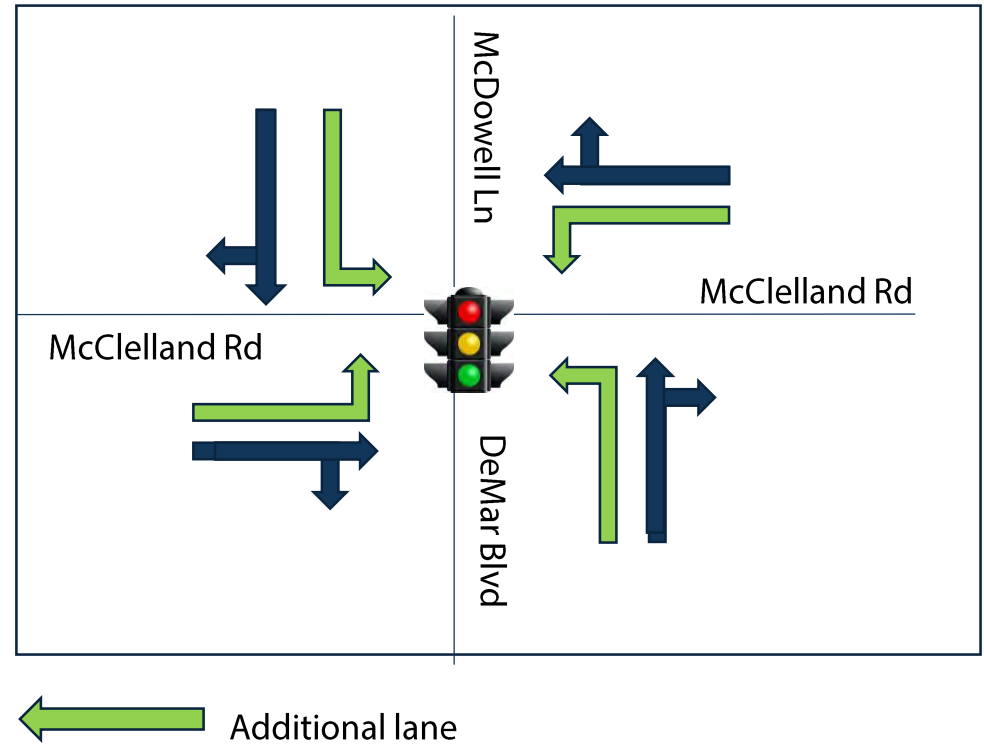
Morganza Rd/Southpointe Blvd (1009-09)



Notes/Concerns:

- Channelize the EB right turn, and have it turn into a lane add along SB Morganza Rd

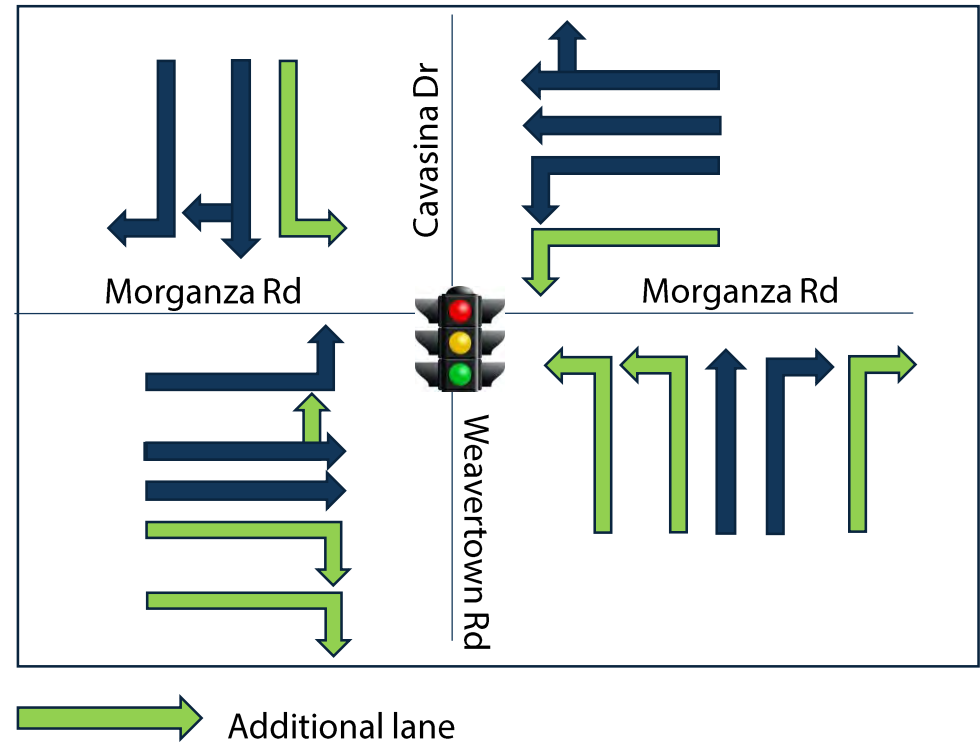
McClelland Rd and McDowell Ln/DeMar Blvd (1023-01)



Notes/Concerns:

- All approaches at this location get an additional dedicated left turn lane with storage of 150'

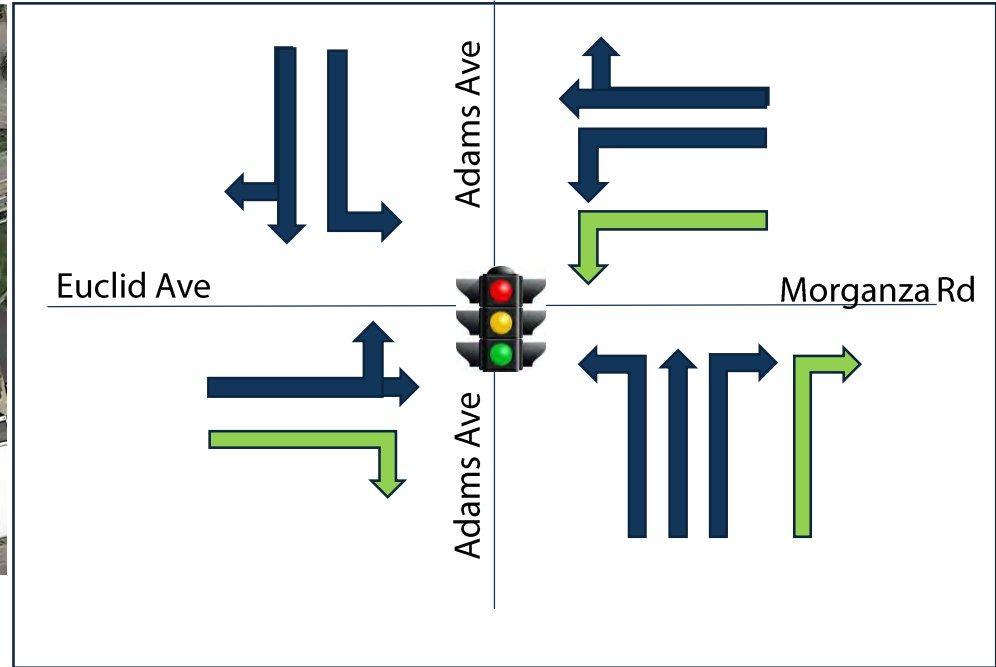
Weavertown Rd/Cavasina Dr and Morganza Rd (1009-12)



Notes/Concerns:

- Additional lanes on all approaches, channelize right turns on NB approach
- 2 NB receiving lanes for the WB dual left turns
- 2 SB receiving lanes to relive congestion getting from Canonsburg to I-79

Morganza Rd/Euclid Ave and Adams Ave (0980-02)

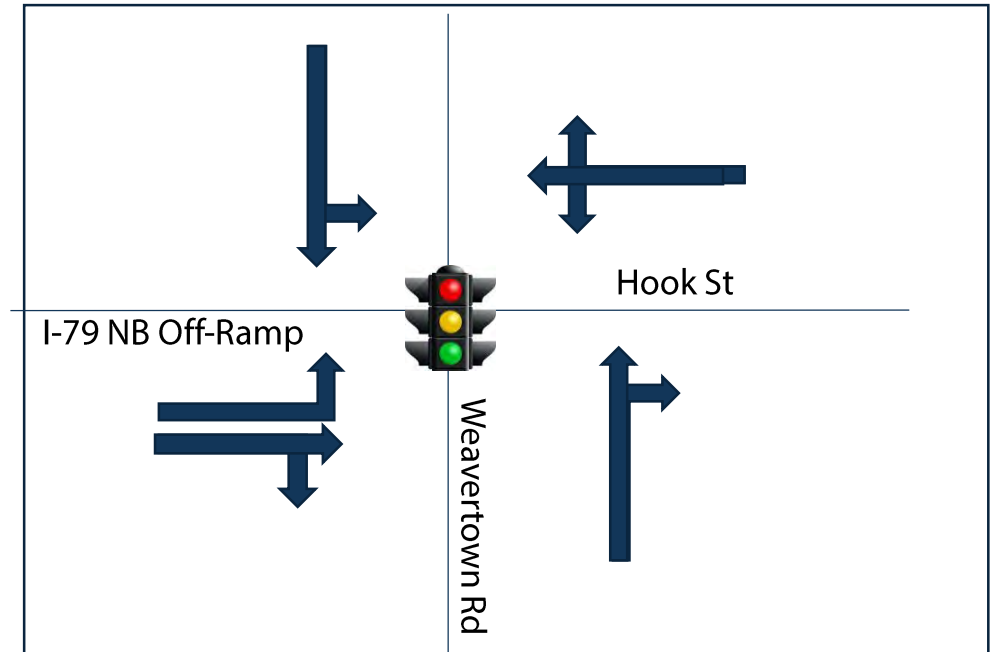


 Additional lane

Notes/Concerns:

- NB approach additional right turn lane, EB approach add a dedicated right turn lane
- Widen the WB approach to help relieve congestion from the Morganza/Weavertown/Cavasina intersection

Weavertown Rd/ I-79 NB Off Ramp/Hook St (1025-02)

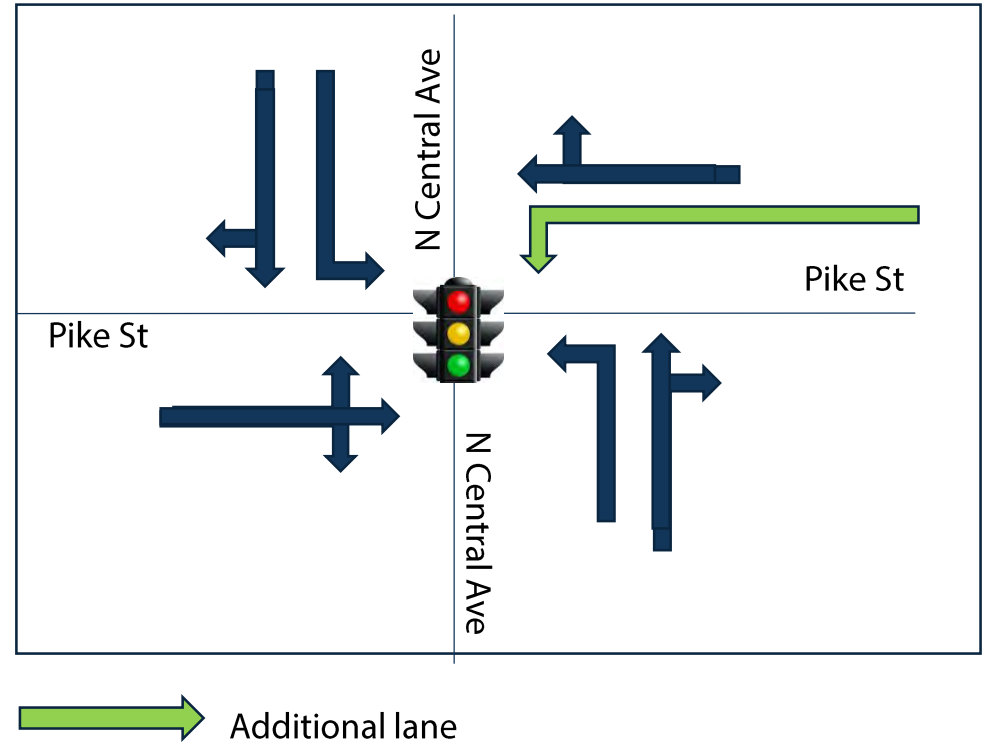


Added signal

Notes/Concerns:

- Intersection meets warrants to put an actuated signal system at this location

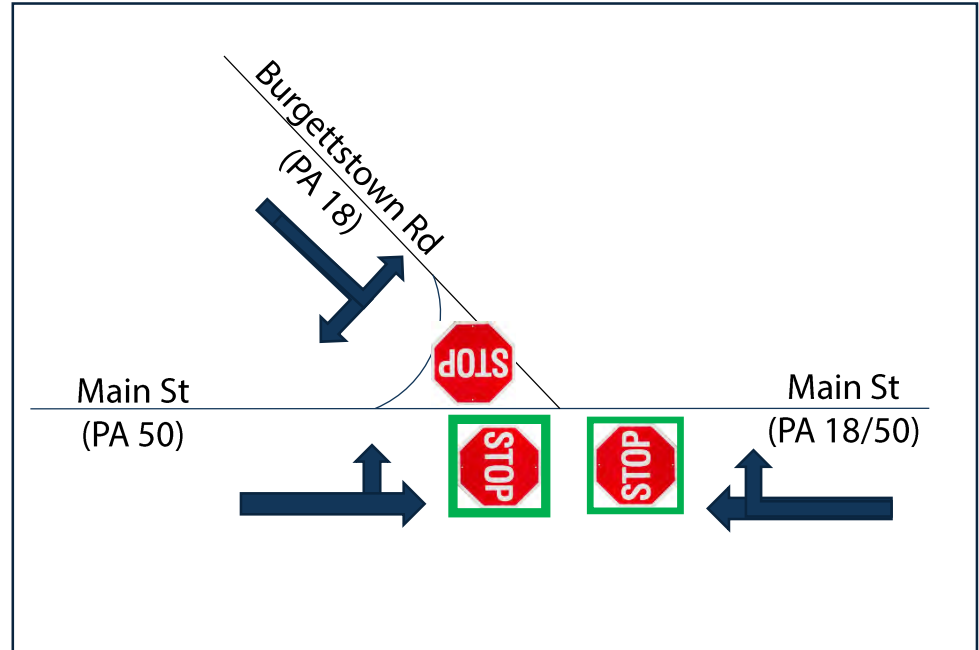
Pike St/ North Central Ave (1009-14)



Notes/Concerns:

- Additional left turn lane that continues from the Morganza Rd/Euclid Ave/Adams Ave/Pike St intersection

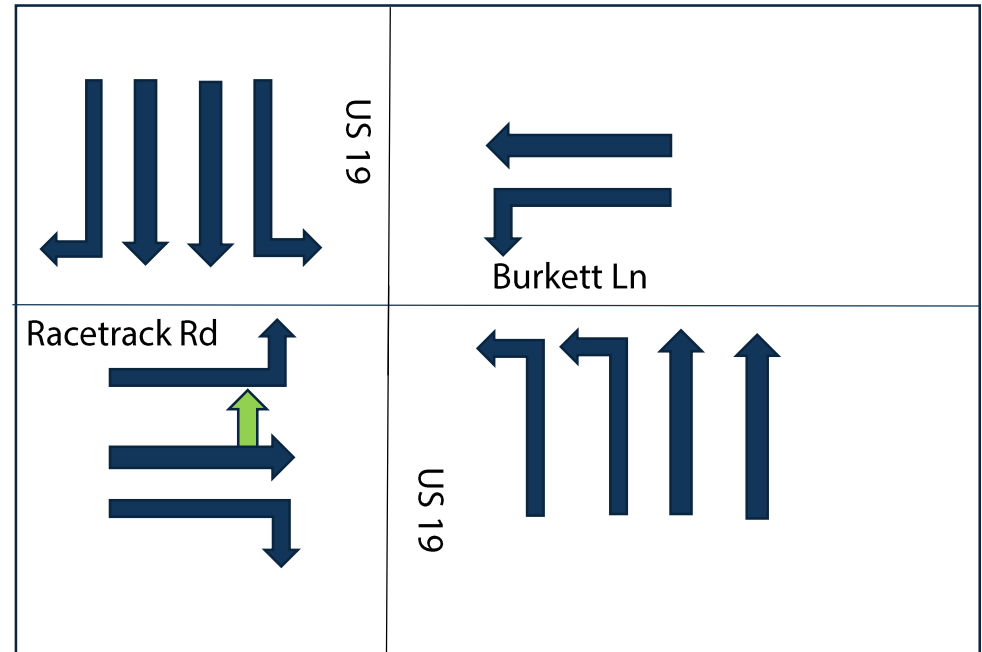
Burgettstown Rd / Main Street (0018-01)



Notes/Concerns:

- Existing safety concern associated with poor geometry
- Further evaluate intersection warrant for all-way stop control
- If warranted, install stop signs on both PA 50 approaches and re-stripe PA 18 approach into single lane.

US 19 / Racetrack Rd / Burkett Ln (0019-16)



 Additional left turn lane (shared thru lane)

Notes/Concerns:

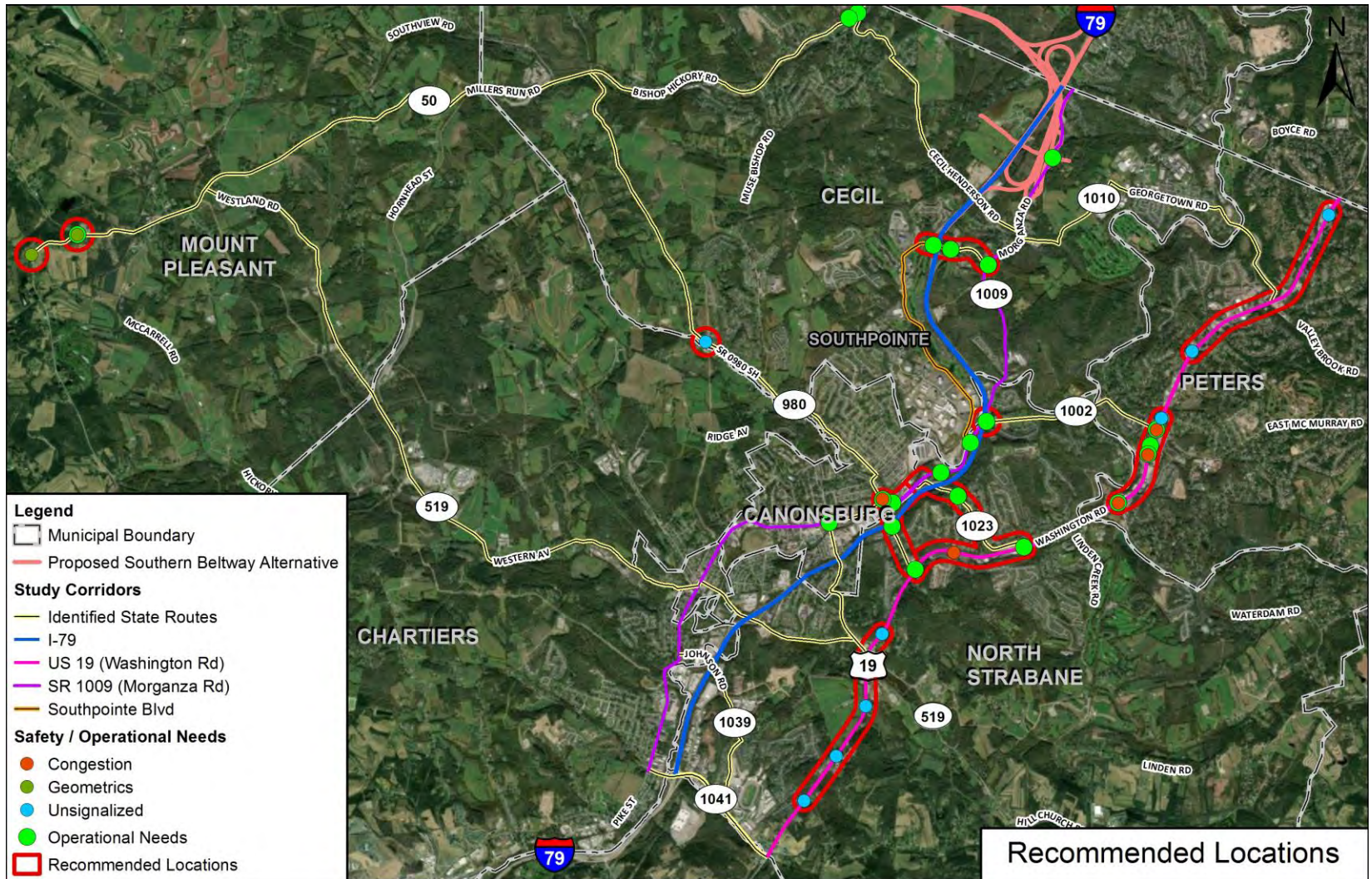
- Re-stripe Racetrack Rd eastbound approach to convert thru lane to shared left/thru lane
- Update traffic signal to provide necessary equipment for split-phased side streets
- Add sidewalks along Racetrack Road

An aerial photograph of a city, showing a river winding through the center and a multi-lane highway running parallel to it. The surrounding area is densely packed with residential and commercial buildings, streets, and parking lots. The image is in grayscale, with the text overlaid in a dark blue color.

Recommended Locations for Conceptual Engineering

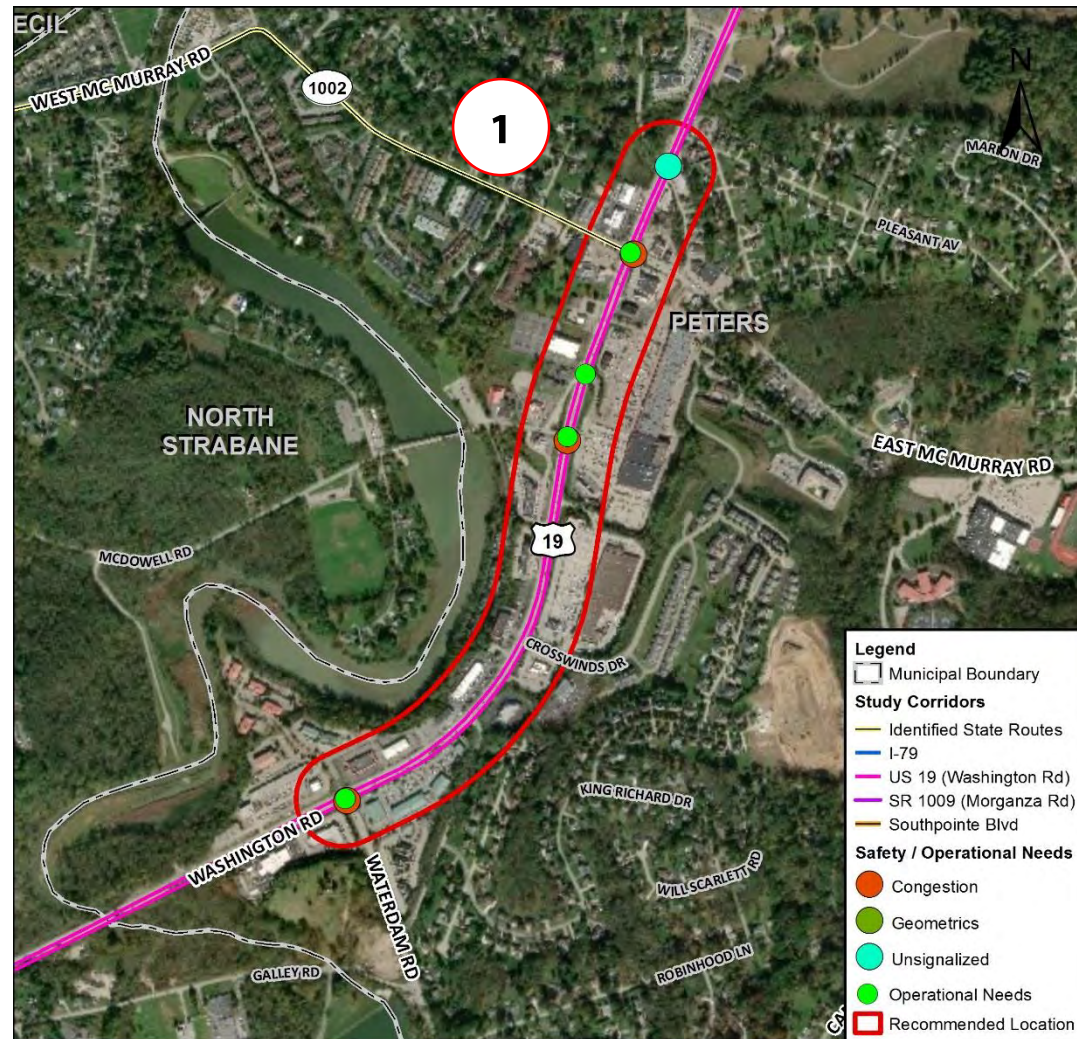
- **Safety and Operational Improvements**

Recommended Locations for Conceptual Engineering



Recommended Locations for Conceptual Engineering

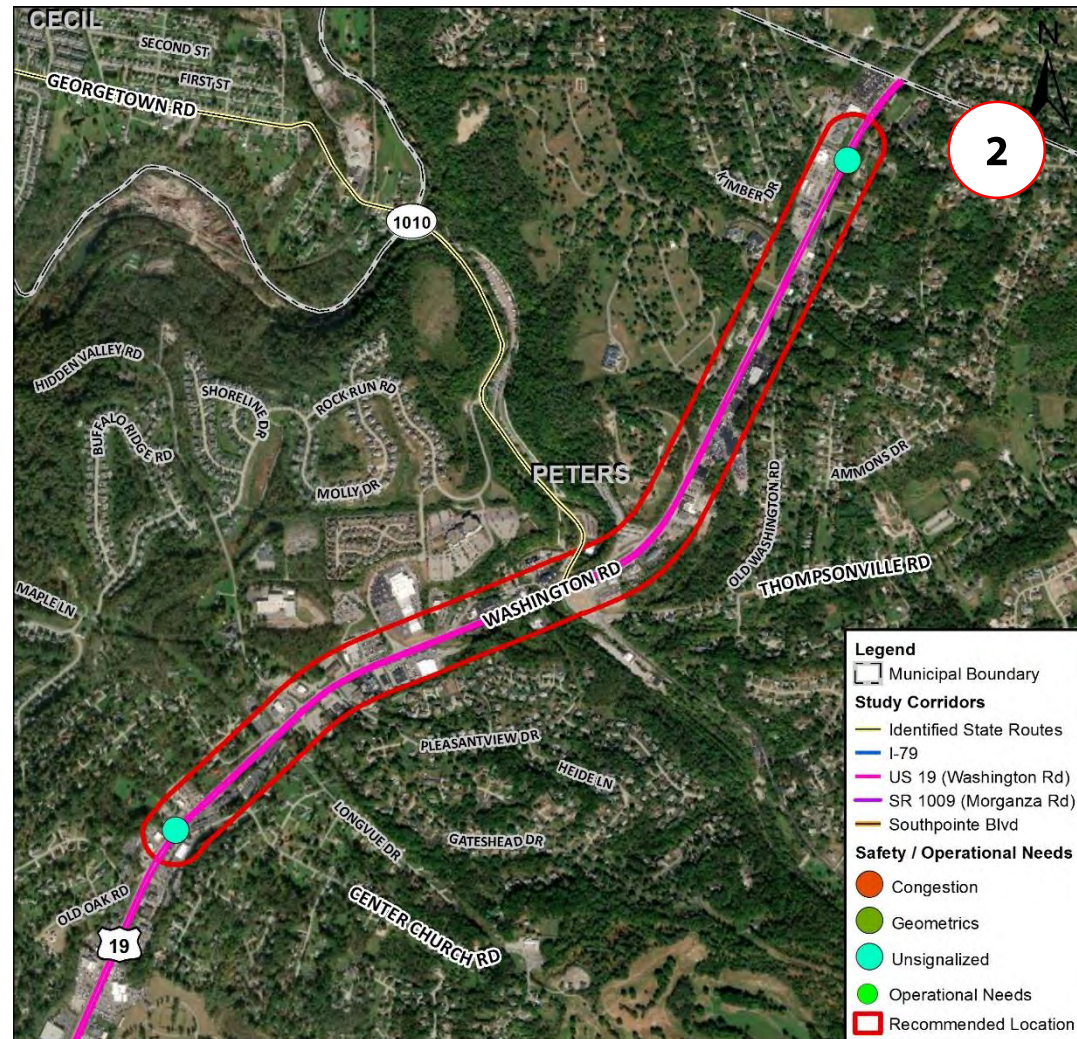
1. US 19 Corridor – Old Oak Road to Waterdam Road
 - Safety and Operational Improvements



Recommended Locations for Conceptual Engineering

2. Northern US 19

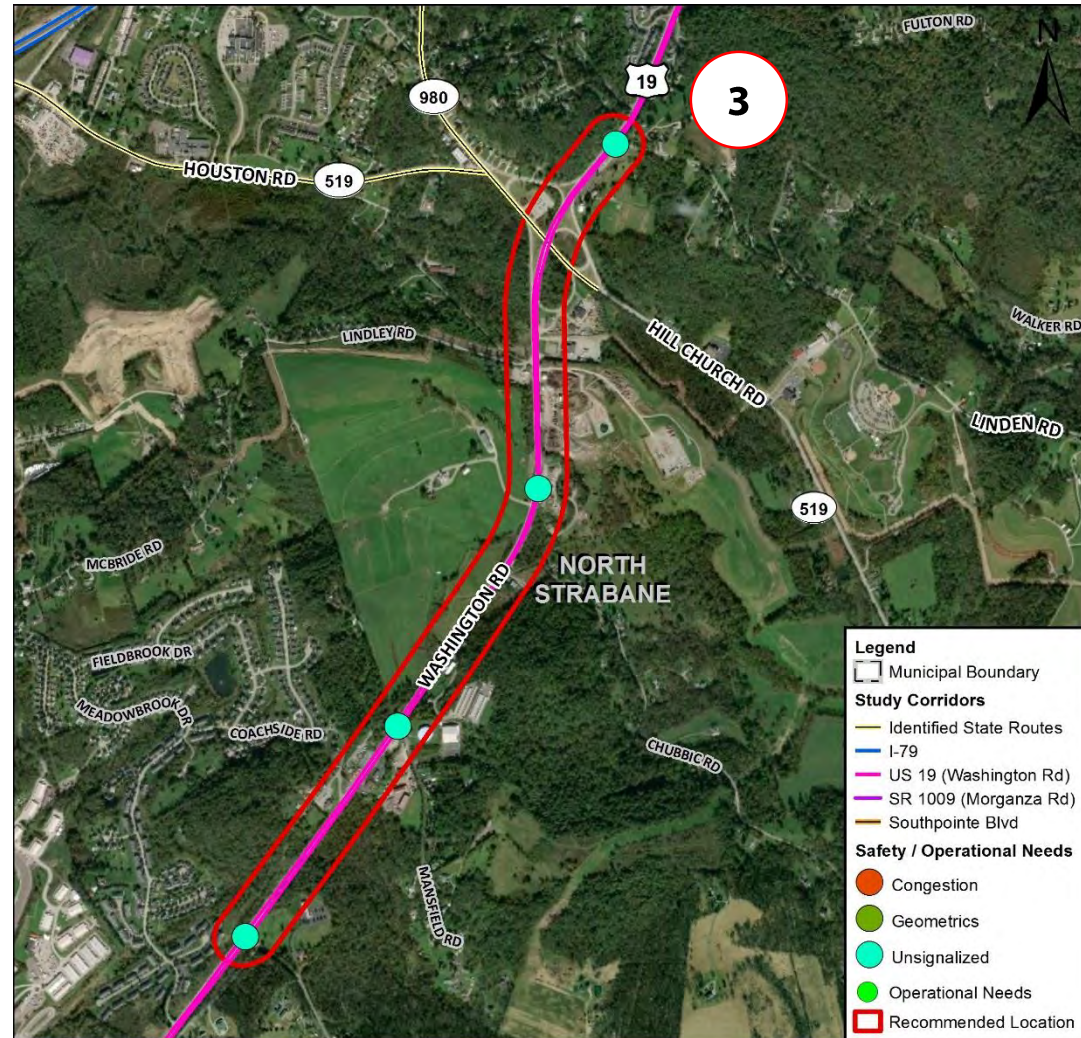
- Safety Improvements



Recommended Locations for Conceptual Engineering

3. Southern US 19

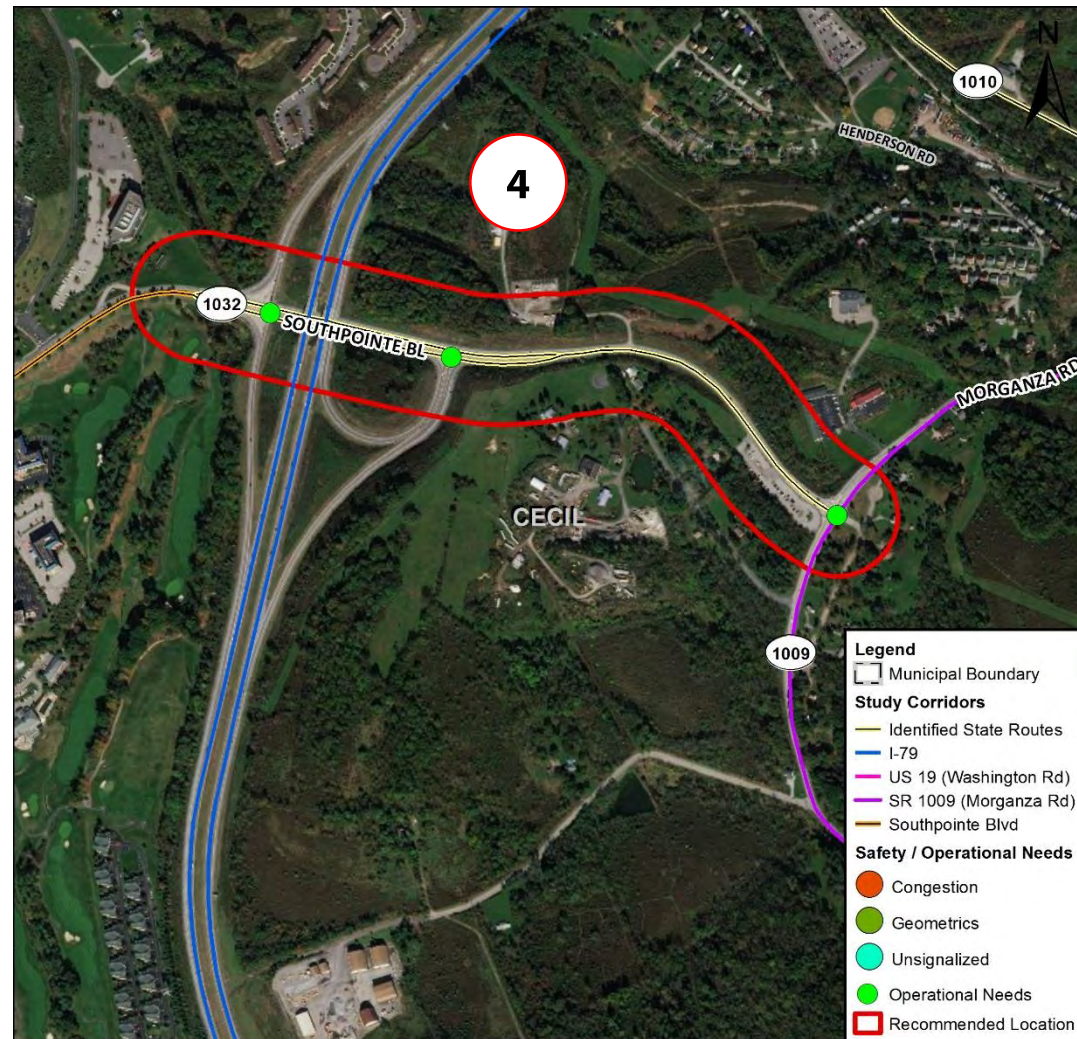
- Safety Improvements



Recommended Locations for Conceptual Engineering

4. Southpointe Blvd – I-79 Interchange to Morganza Road

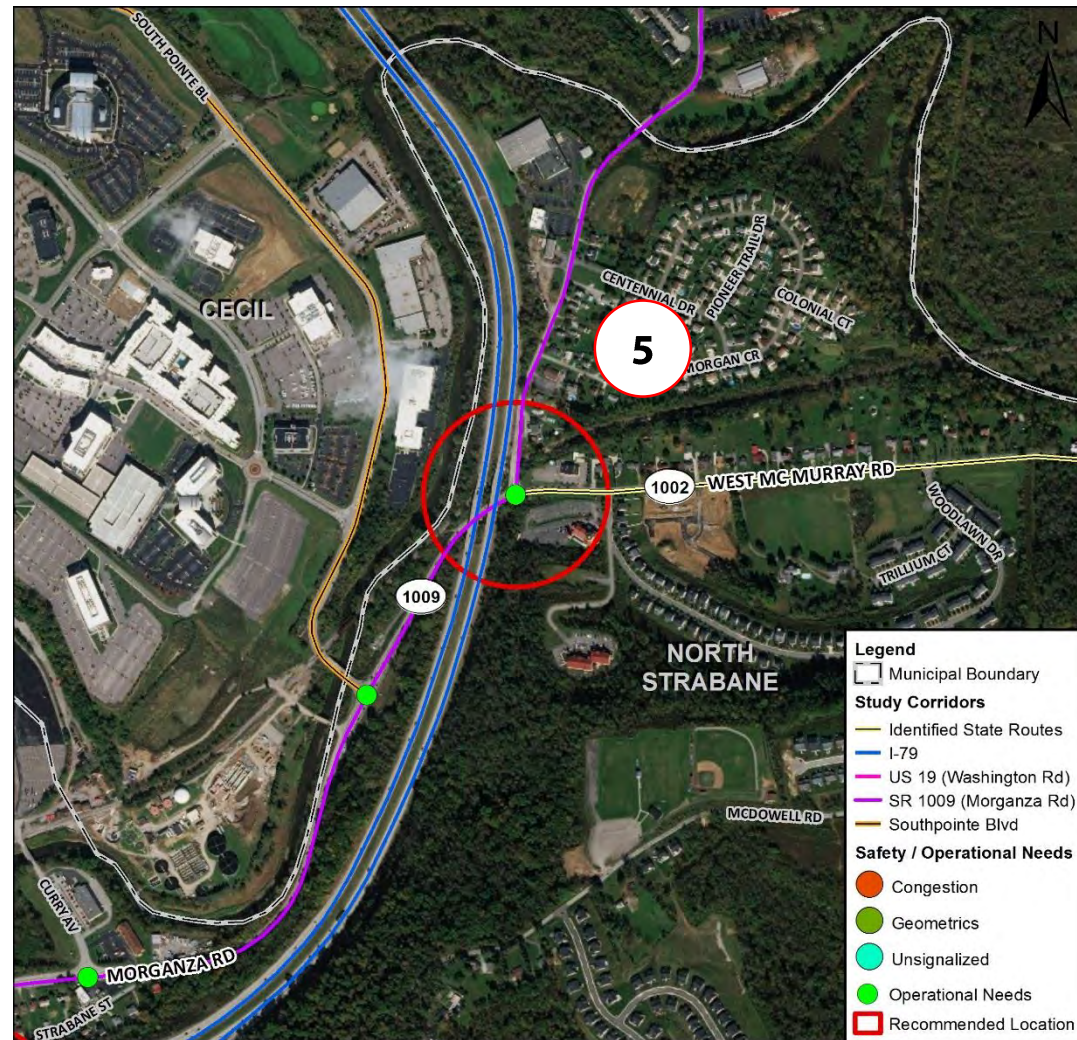
- Operational Improvements



Recommended Locations for Conceptual Engineering

5. Morganza Road & W McMurray Road

- Operational Improvements



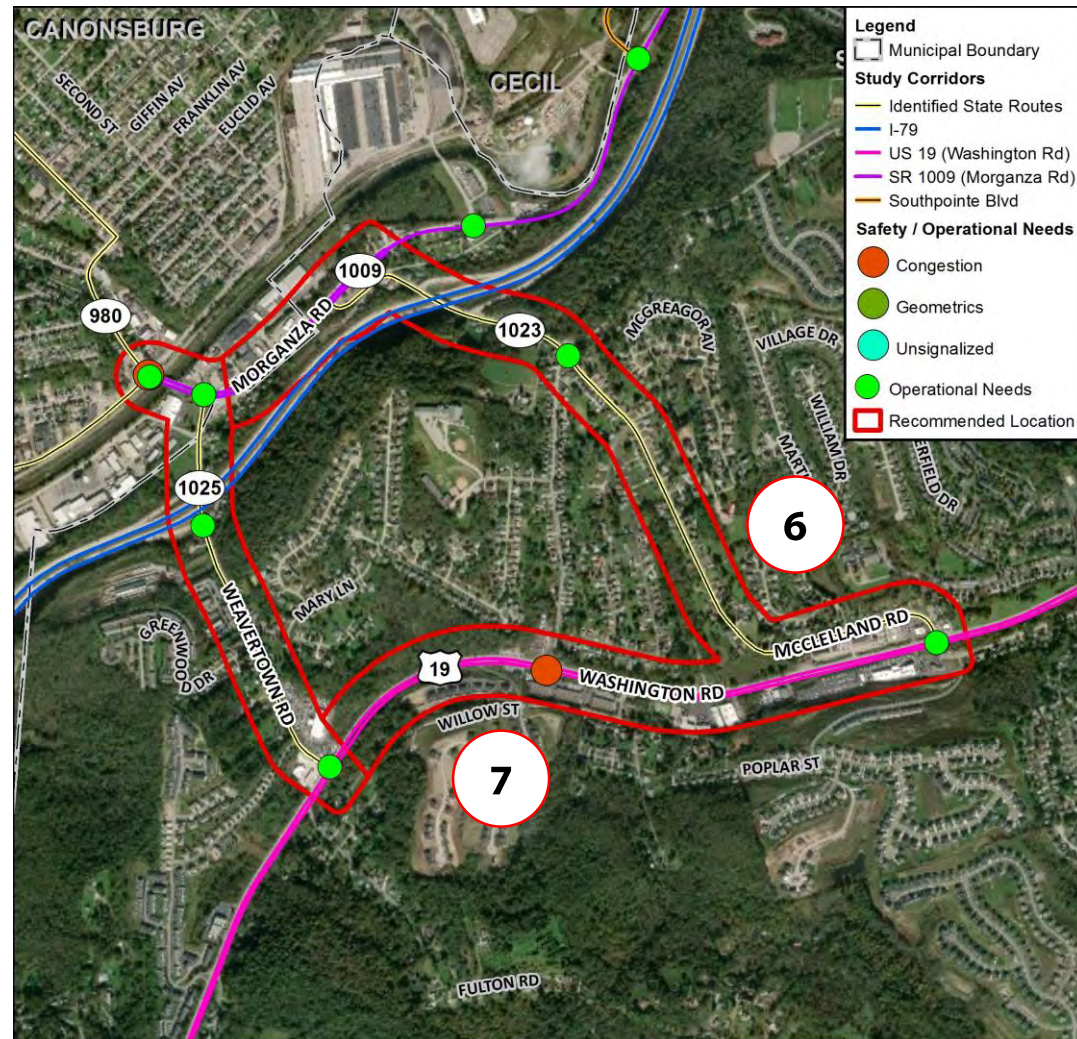
Recommended Locations for Conceptual Engineering

6. US 19 and McClelland Road to Morganza Road

- Operational and Safety Improvements

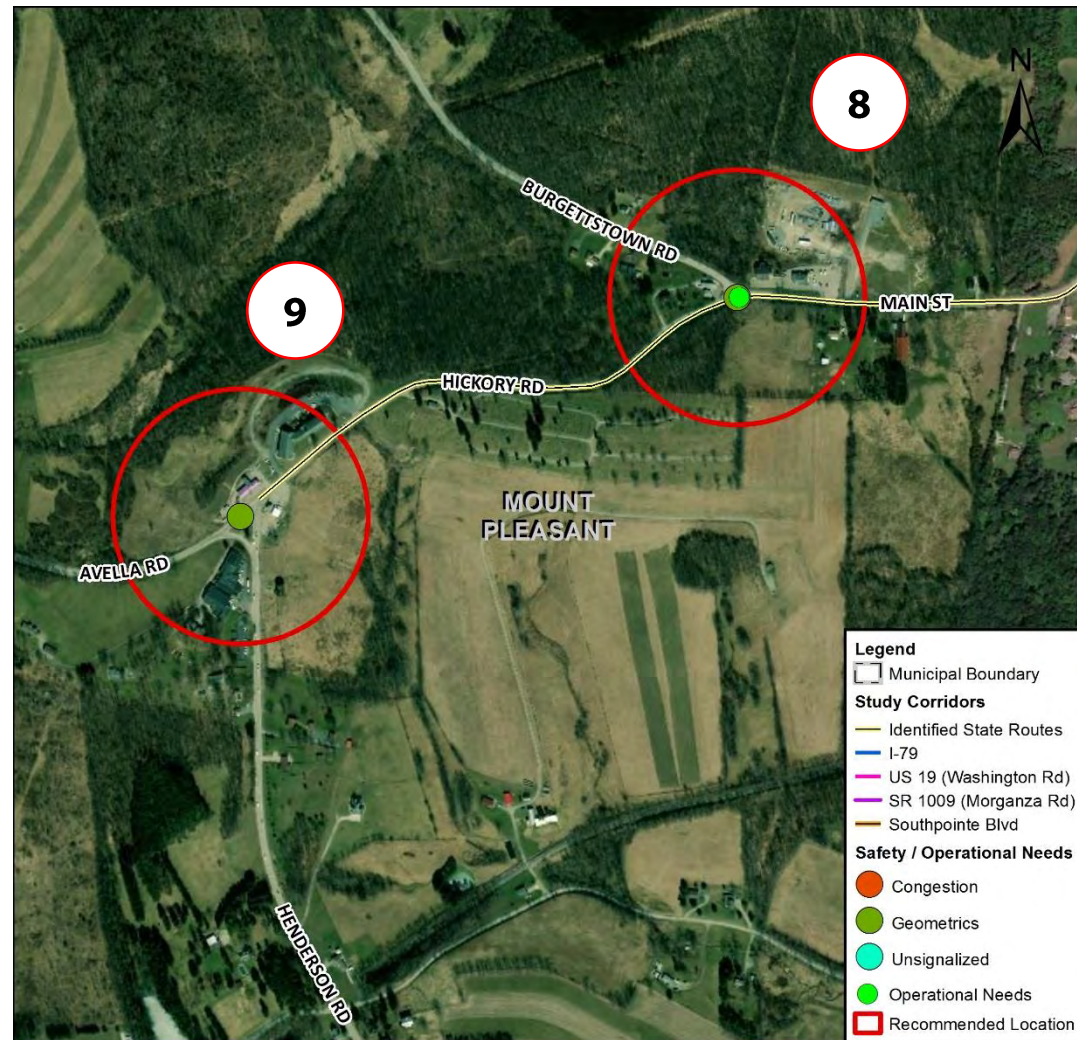
7. Weavertown Road to Morganza Road

- Operational and Safety Improvements



Recommended Locations for Conceptual Engineering

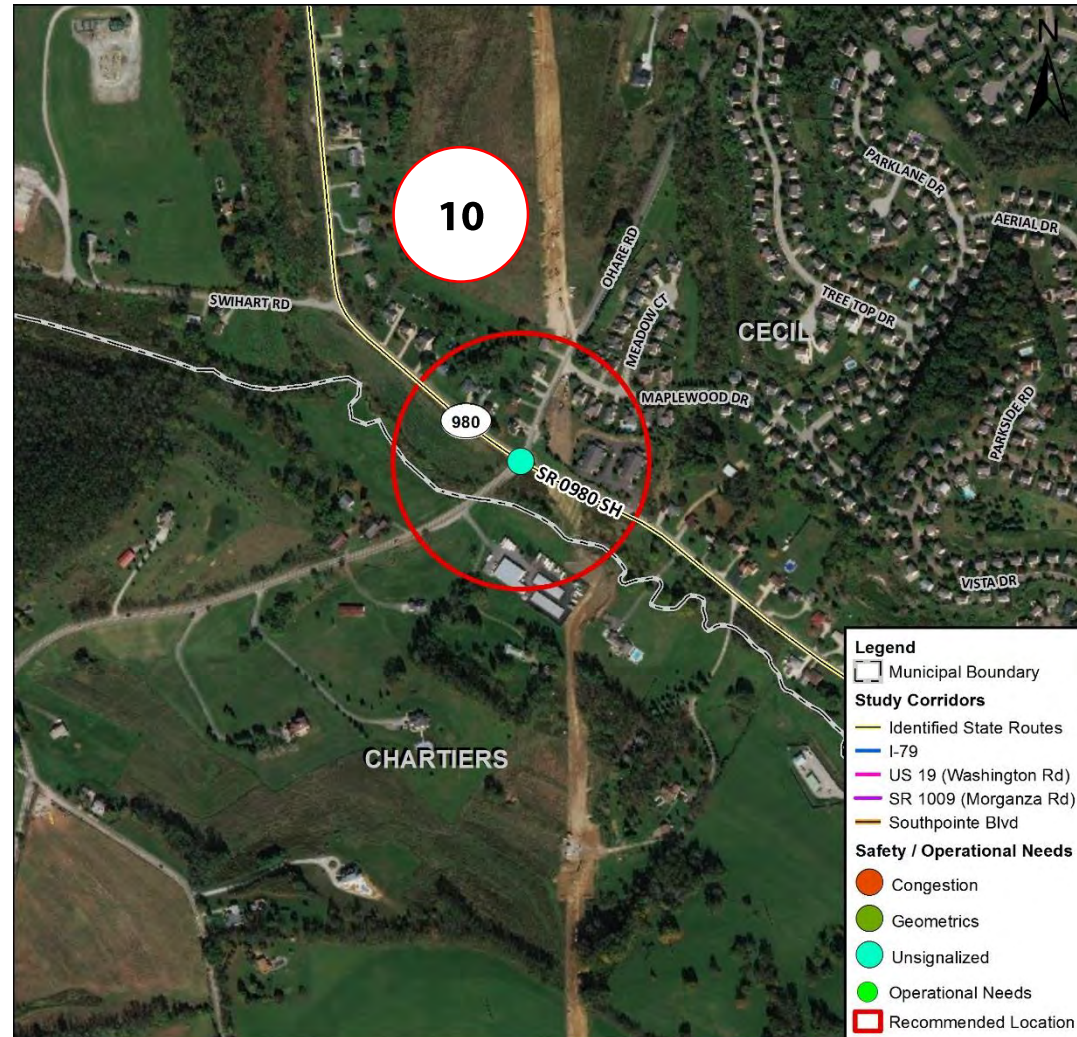
8. SR 18 – Burgettstown Road
 - Safety and Operational Improvements
9. SR 18 – Henderson Road & Avella Road
 - Safety Improvements



Recommended Locations for Conceptual Engineering

10. SR 980 / OHare Road

- Safety Improvements

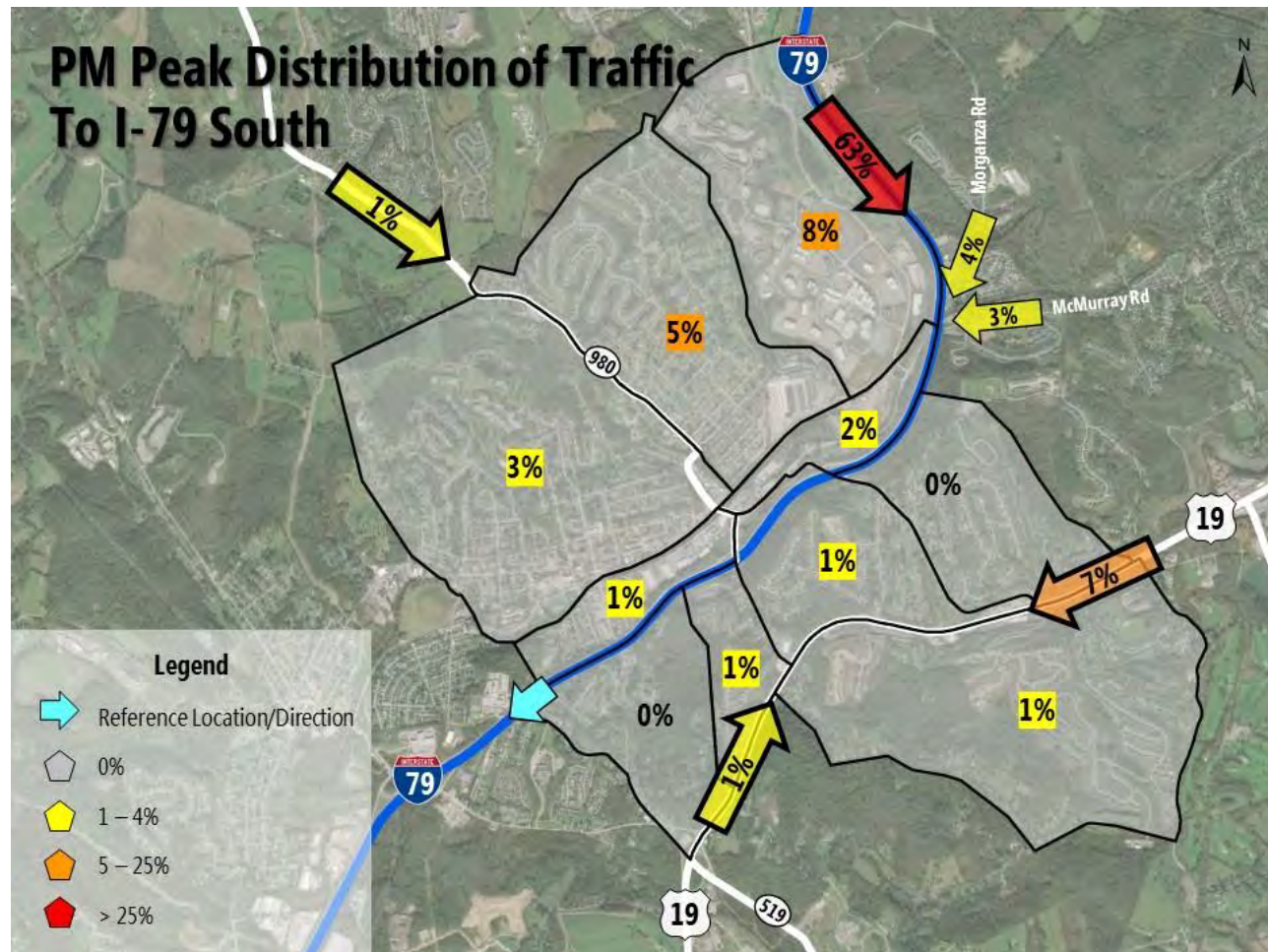


Mobility Analysis

- **Origin and Destination Analysis**

Mobility Analysis– Origin / Destination

- Significant traffic to I-79 from Southpointe area and US 19
- Could benefit from C-D road along I-79 and upgrades to E/W roads between US 19 and I-79



Next Steps

- **Conceptual Engineering**
- **Multimodal Improvements**
- **Estimated Cost and Financing Options**
- **Public Workshop**



Northern Washington County Corridor Based Transportation Plan

STAKEHOLDER WORKSHOP

August 1, 2018

Agenda

Project Overview

Stakeholder and Public Input

Existing Conditions

Future Conditions

Safety Concerns and Operational Needs

Recommended Locations for Conceptual Engineering

Mobility Analysis

Next Steps

Project Overview

Study Purpose

Study Intersections and Corridors

Goals and Objectives

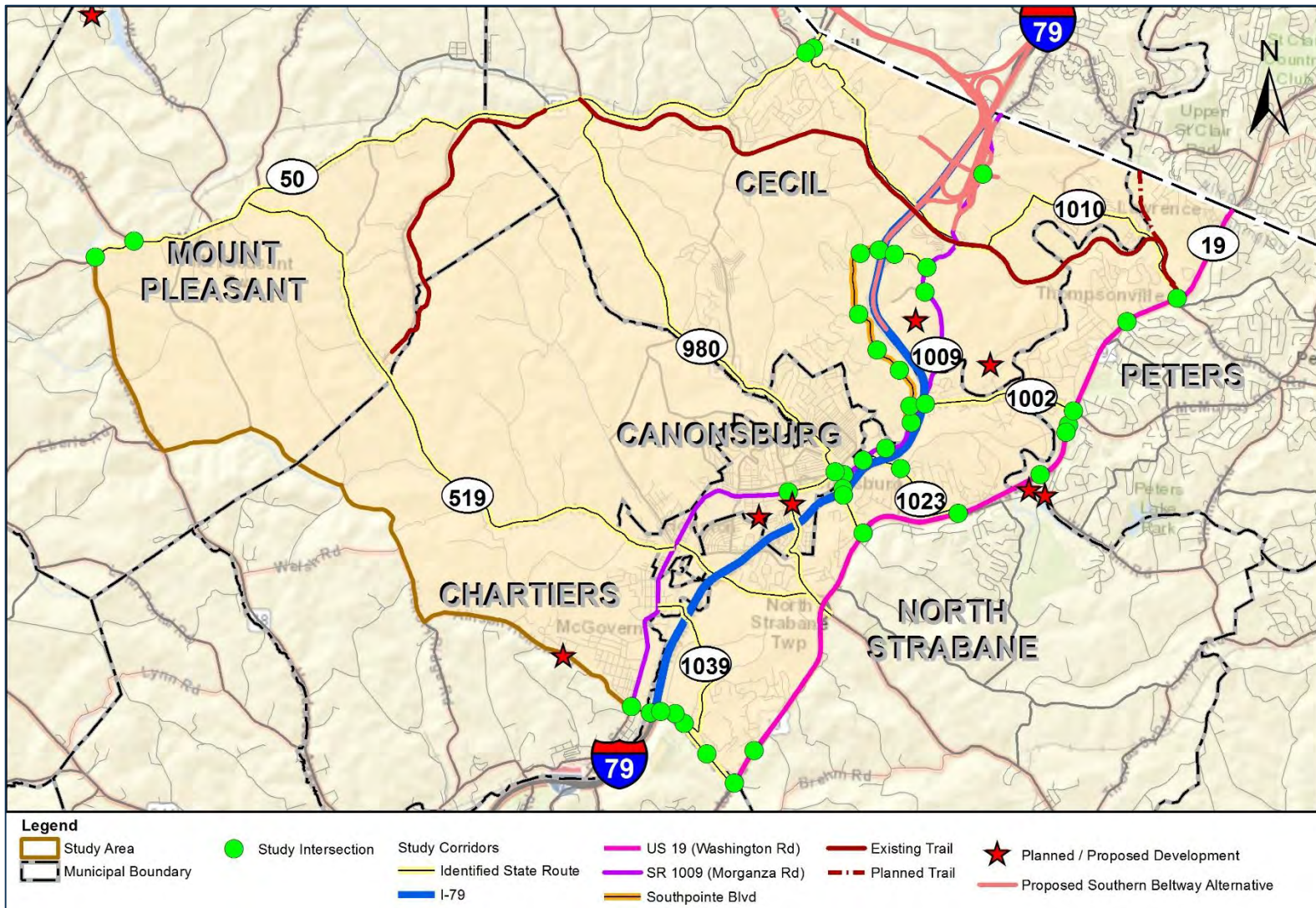
Study Process

Project Overview

STUDY PURPOSE

Evaluate the study corridors and intersections within the Study Area to identify short-term and long-term improvements that satisfy the goals and objectives of the Study.

Project Overview



Project Overview

GOALS AND OBJECTIVES

- Improve Safety
- Reduce Congestion
- Improve Connectivity
- Mitigate Deficiencies
- Integrate Signal Improvements
- Identify Funding Options

Project Overview

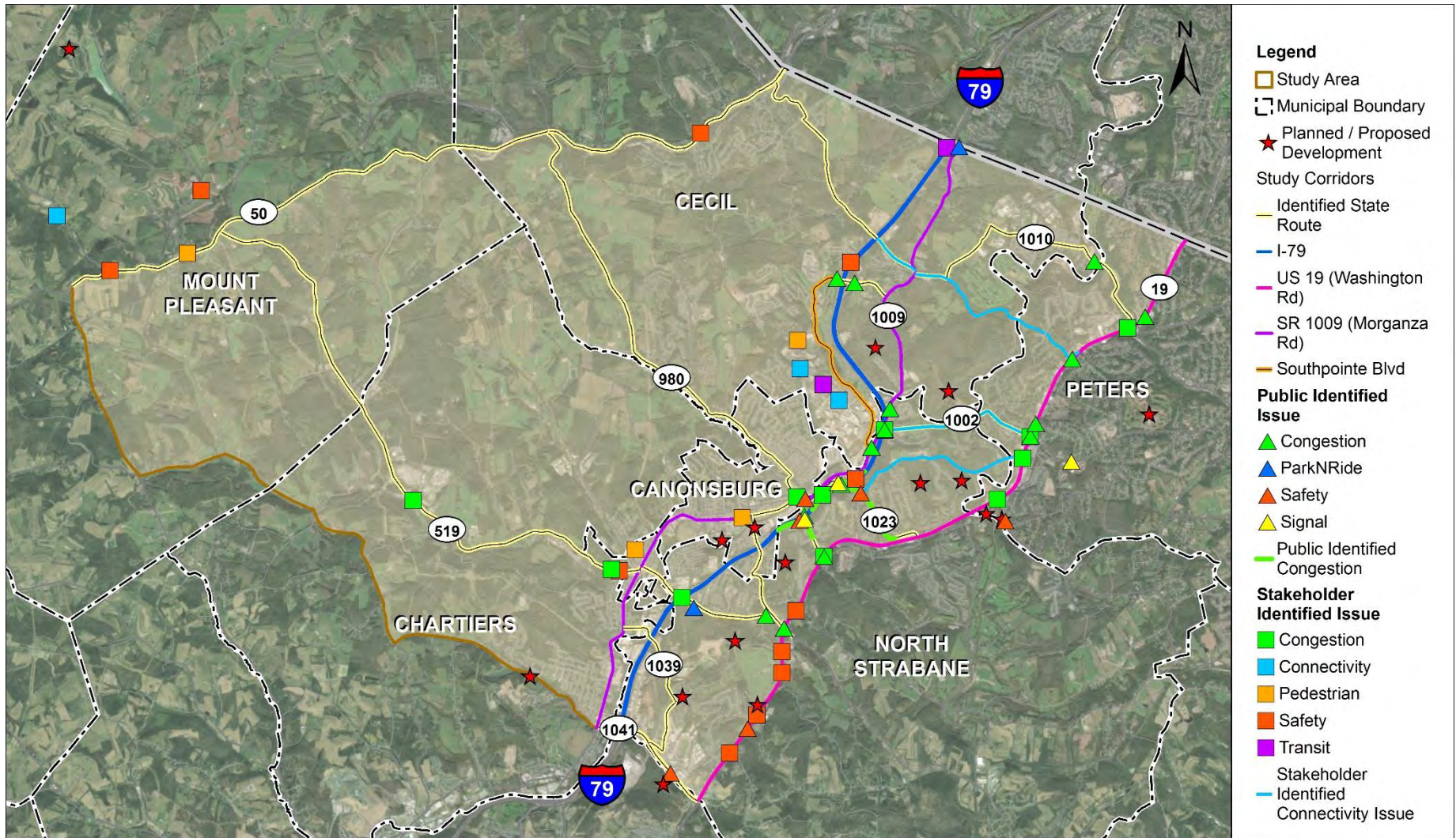
STUDY PROCESS

- Analyze existing and future conditions
- Evaluate Mobility and Accessibility
- Identify Safety Concerns
- Recommend short-term and long-term improvement projects
- Identify potential funding sources and strategies

An aerial, grayscale photograph of a suburban neighborhood. A wide, multi-lane road curves through the center of the image. On either side of the road, there are residential streets with houses and trees. The overall scene is a typical suburban development.

Stakeholder and Public Input

Stakeholder and Public Input



An aerial photograph of a highway interchange and surrounding residential areas. The highway is a multi-lane road that curves through the landscape. The surrounding area is densely populated with houses and streets. The image is in grayscale, with the text overlaid in blue and black.

Existing Conditions

Capacity Analysis
Safety Concerns

Safety Concerns - Unsignalized

- 7 locations along US 19 & 1 location on SR 980
- Unsignalized Intersections
- No Turn Lanes
- Sight Distances



Safety Concerns - Geometrics

SR 18 (Henderson Road) & SR 18 (Avella Road)



Safety Concerns - Geometrics

SR 18 (Burgettstown Road) & US 50 / SR 18



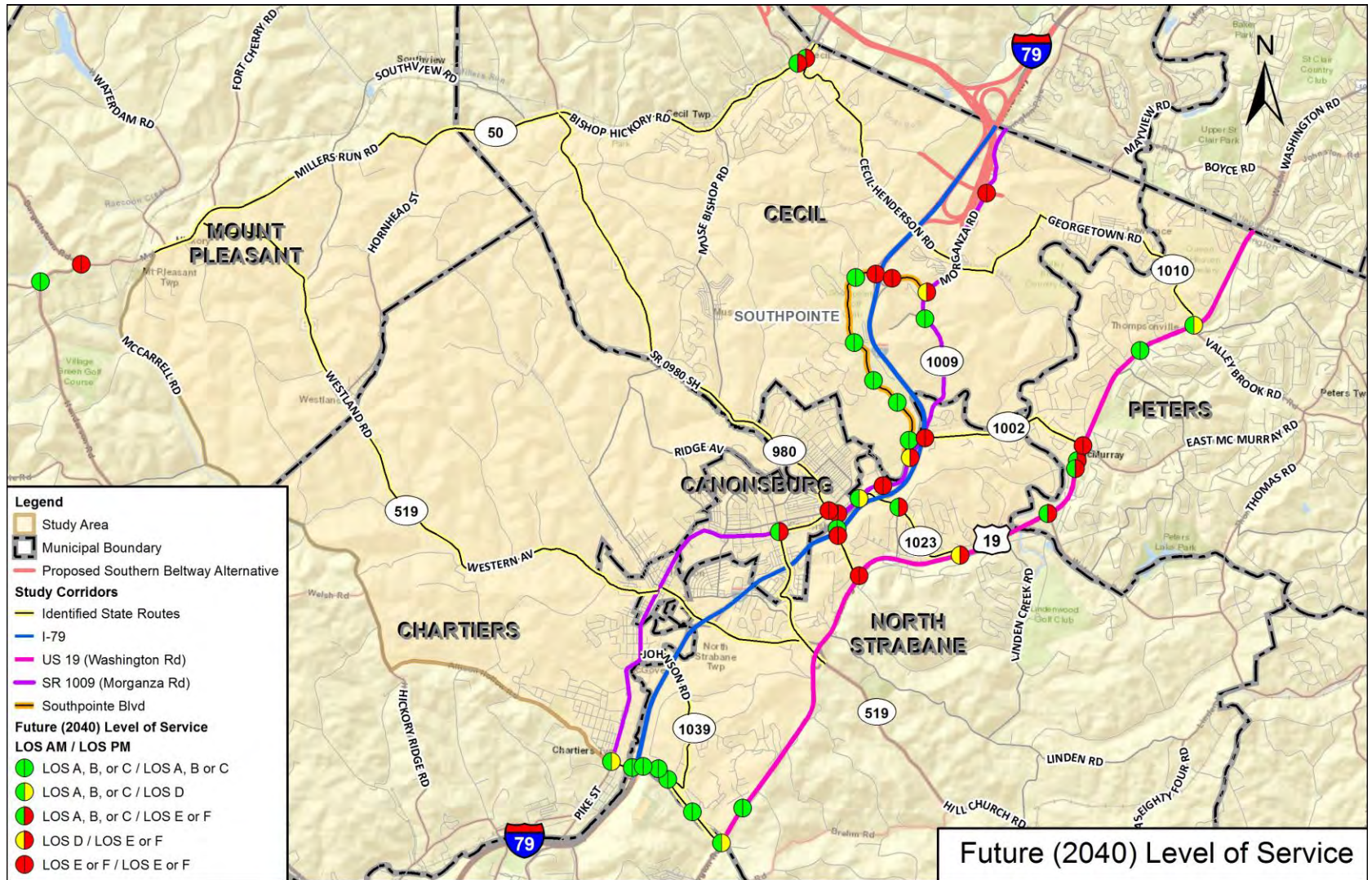
Future Conditions

Existing and Future Traffic Volumes
Future Capacity Analysis

Existing and Future Traffic Volumes

Road	2018	2040	Difference	% Change
SR 50	7,790	10,040	+2,250	29%
US 19	24,060	26,570	+2,510	10%
Morganza Road	11,150	13,580	+2,430	22%
West McMurray Road	13,460	14,870	+1,410	10%
Weavertown Road	16,000	18,390	+2,390	15%
I-79 SB Off-Ramp at Southpointe Blvd	9,790	13,330	+3,540	36%
Southpointe Boulevard	13,620	18,540	+4,920	36%
Racetrack Road	13,920	17,740	+3,820	27%

Future Level of Service



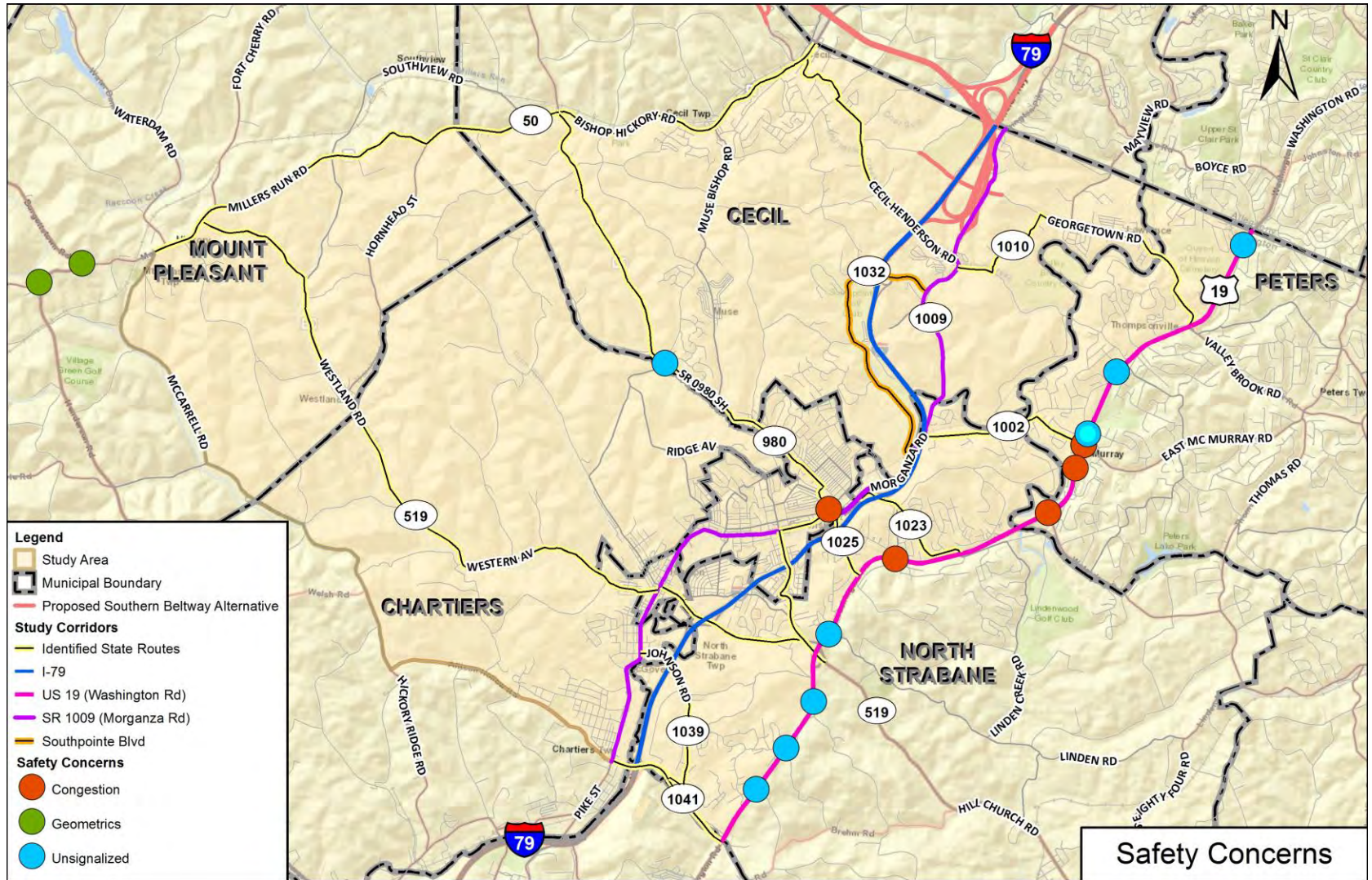
An aerial photograph of a residential area, showing a road, a river, and various buildings and structures. The image is in grayscale and serves as a background for the text.

Safety Concerns and Operational Needs

Safety Concerns

Operational Needs

Safety Concerns



Safety Concerns

GEOMETRIC IMPROVEMENT STRATEGIES:

- Low cost safety improvements
 - Signing and pavement markings
 - Delineation
 - Flashing Warning Devices
 - Intersection lighting
 - Access Management
- Potential Realignment

SR 18 (Henderson Road) &
SR 18 (Avella Road)



SR 50 (Main Street) &
SR 18 (Burgettstown Road)



Safety Concerns

UNSIGNALIZED INTERSECTION MITIGATION STRATEGIES:

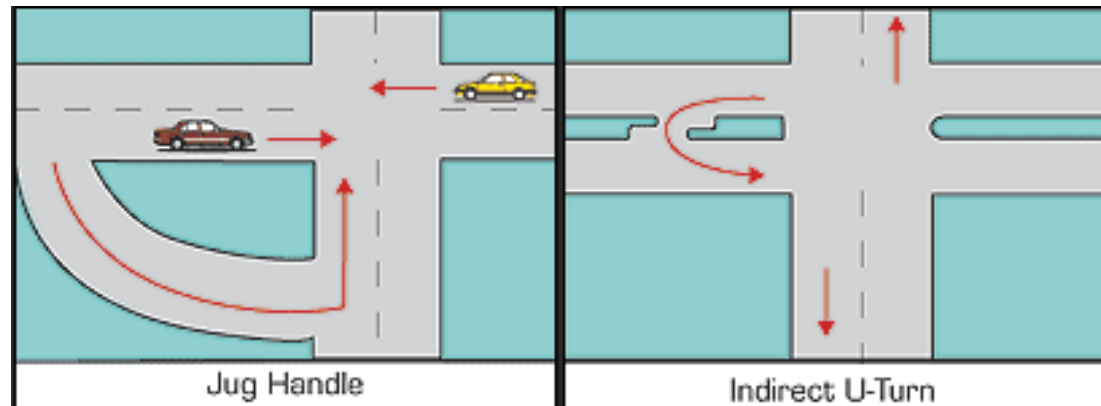
- Restricting turning movements
- Tree trimming
- Access Management Strategies



Safety Concerns

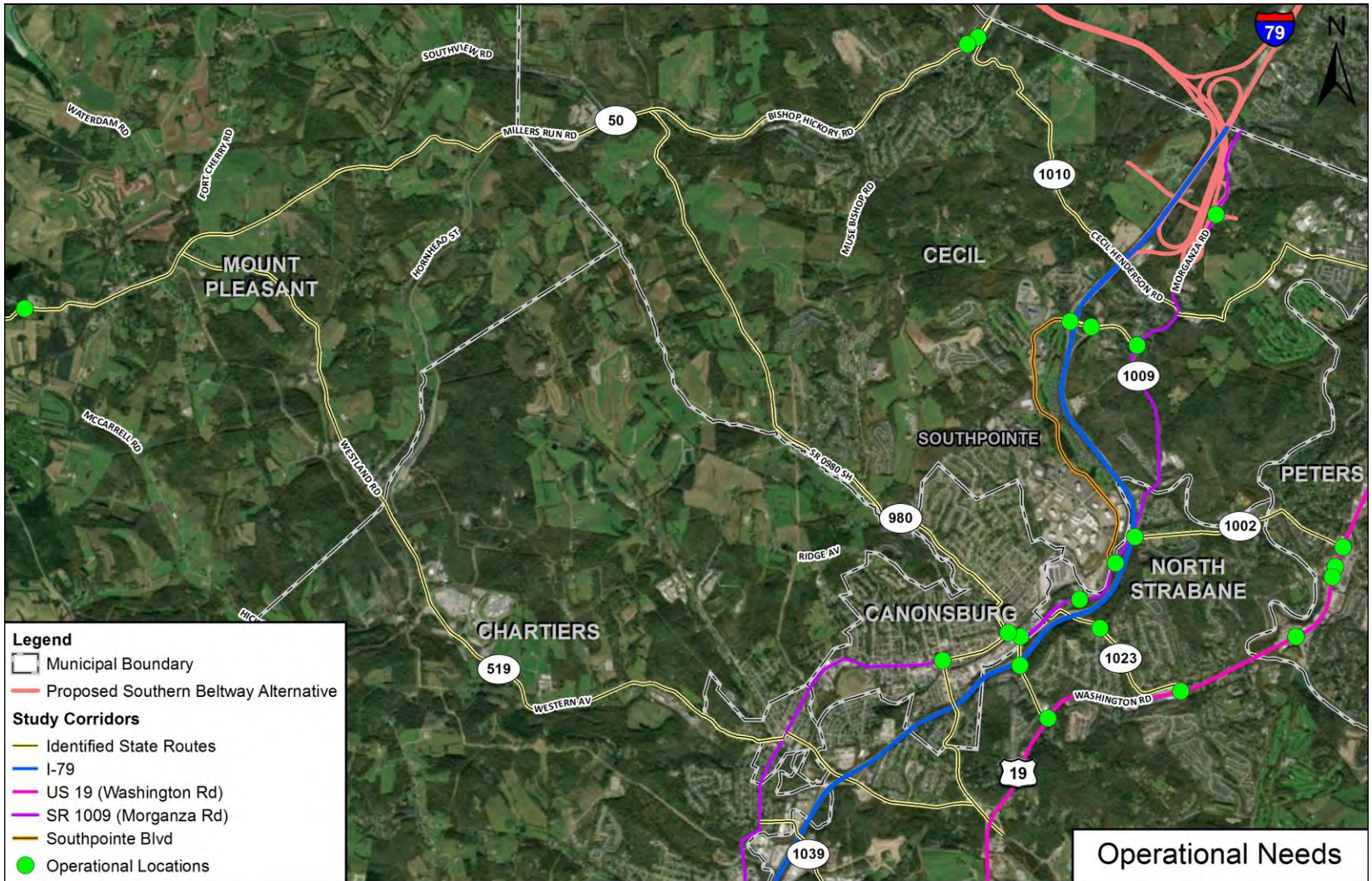
ACCESS MANAGEMENT STRATEGIES:

- Intersection Spacing
- Driveway Spacing
- Traffic Signal Spacing
- Median Treatments and Median Openings
- Turning Lanes and Auxiliary Lanes
- Street Connections such as Frontage Roads or Collector Distributors

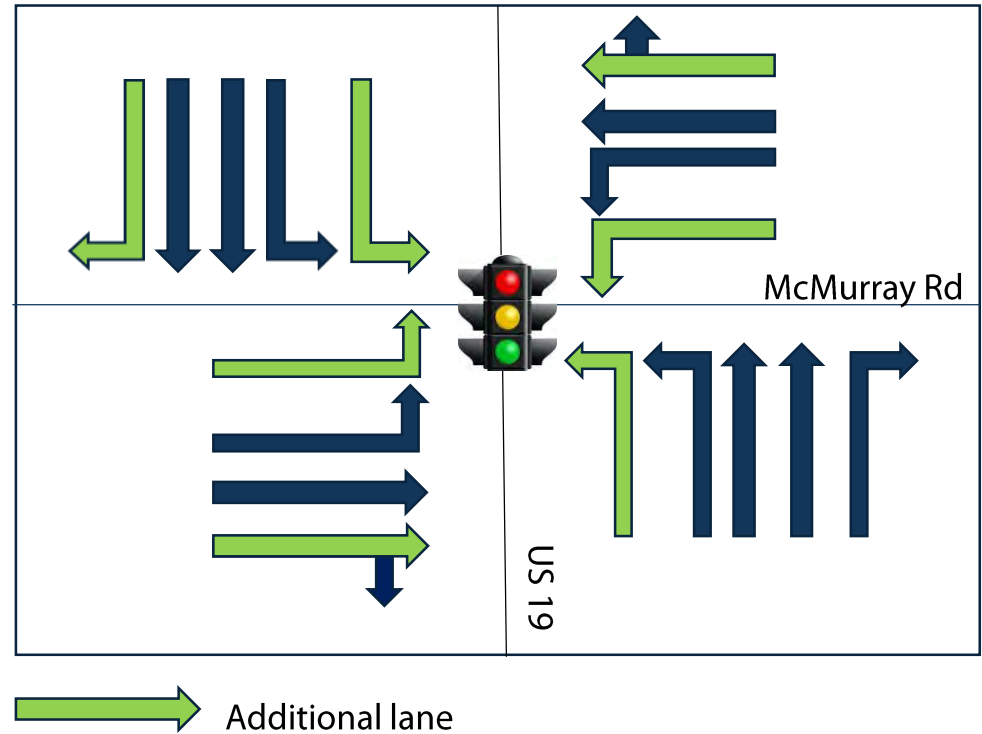


Slide 23

Operational Needs



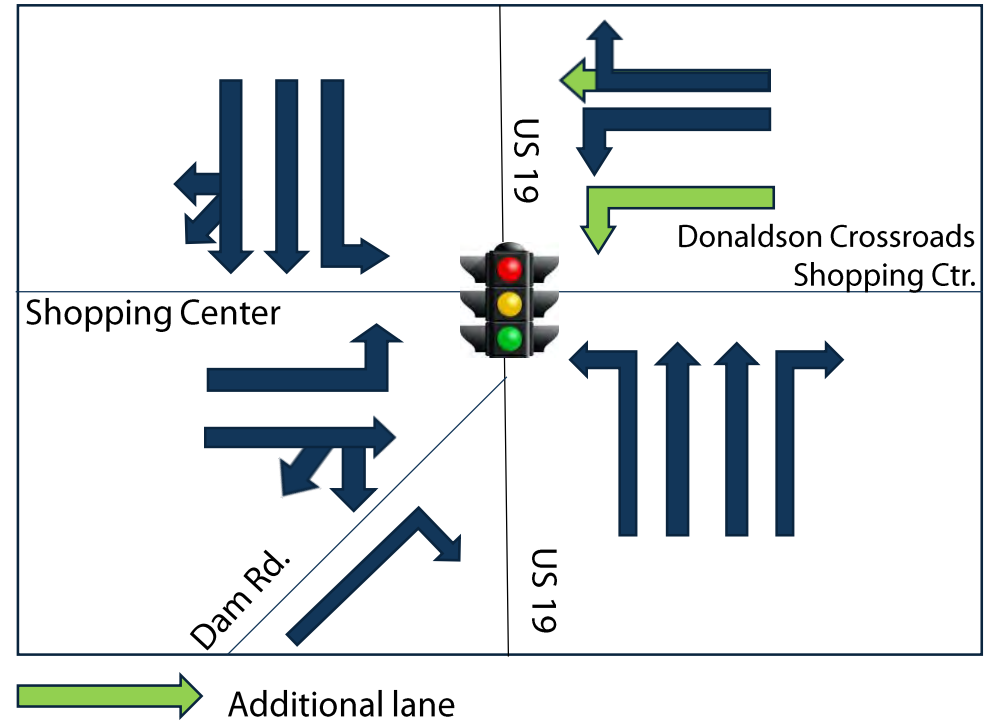
Washington Rd (US 19) / McMurray Road (SR 1002) (0019-07)



Notes/Concerns:

- Removed split phasing. Widening for only EB and WB dual turn lanes helps, but not enough.
- Dual NB and SB lefts then require additional receiving lanes.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

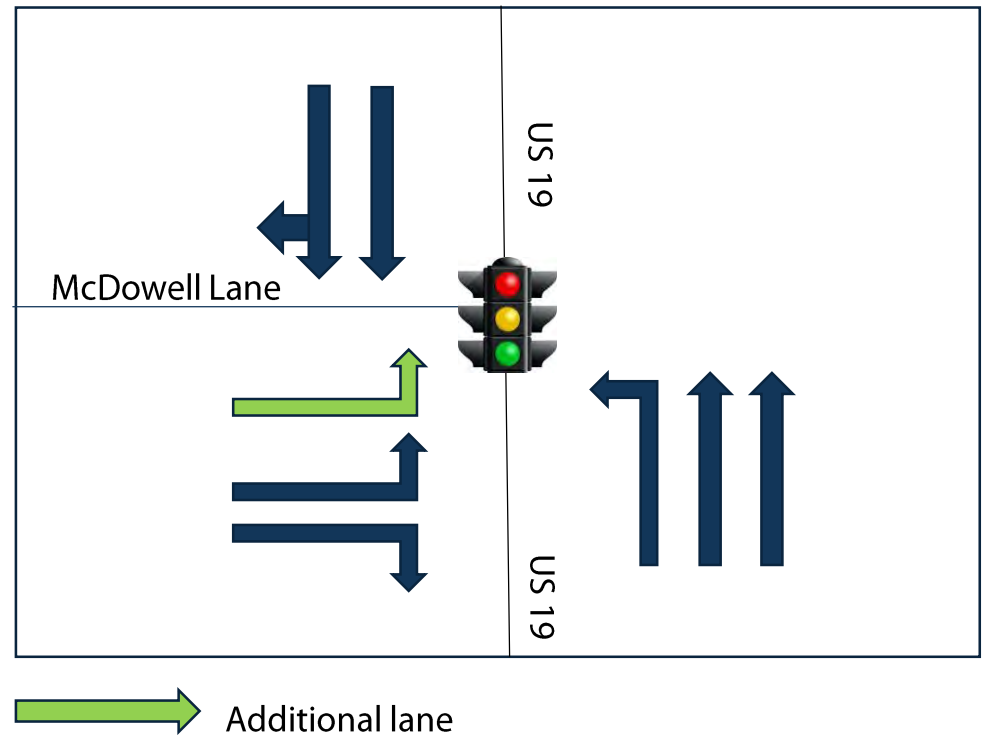
Washington Road (US 19) / Donaldson Crossroads Shopping Center Drive/Dam Road (0019-08)



Notes/Concerns:

- Left cluster with signal at McDowell Lane due to 300' separation.
- Able to reach acceptable overall LOS, however with WB Approach still E (PM).
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

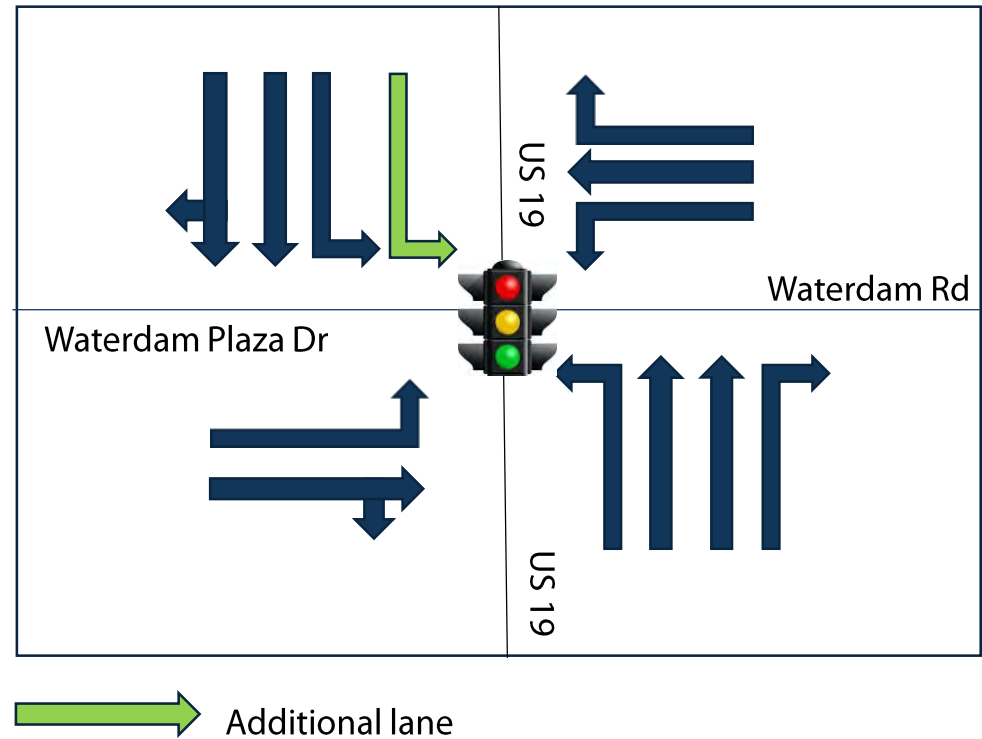
Washington Road (US 19) / McDowell Lane (0019-09)



Notes/Concerns:

- Left cluster with signal at Donaldson Crossroads due to 300' separation.
- Able to reach acceptable overall LOS, however with NB Approach still E (PM).
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

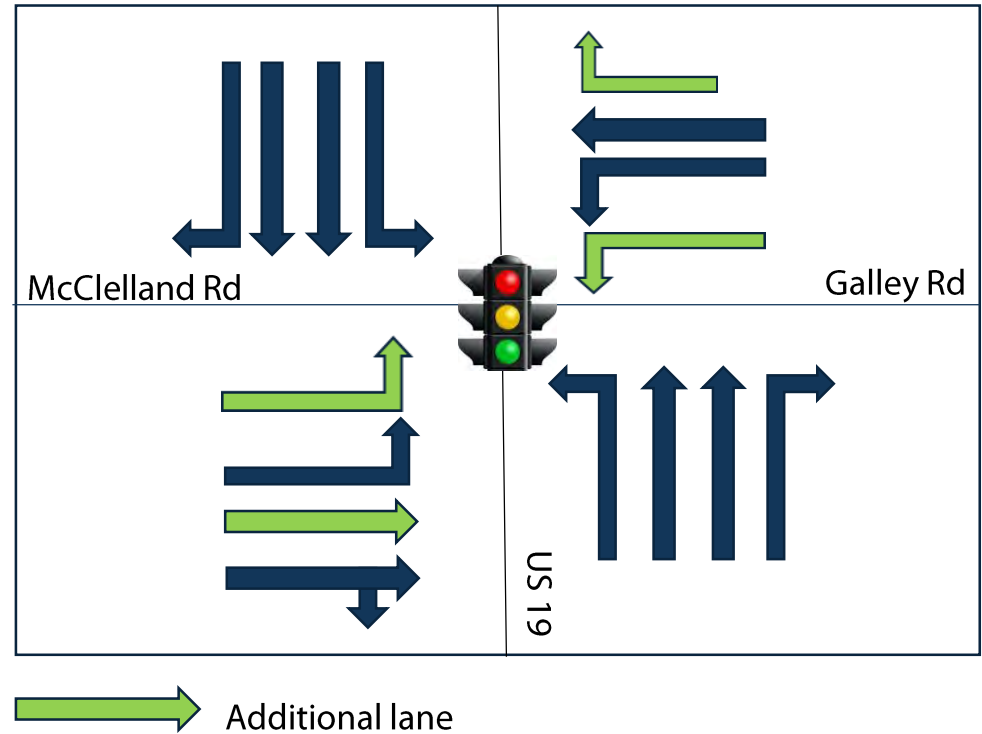
Waterdam Plaza Drive/Waterdam Road (SR 1053) / Washington Road (US 19) (0019-11)



Notes/Concerns:

- Similar to previous intersections. Some additional capacity helps reach acceptable LOS, but with WB movement borderline E (PM).
- Dual SB lefts then require additional receiving lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

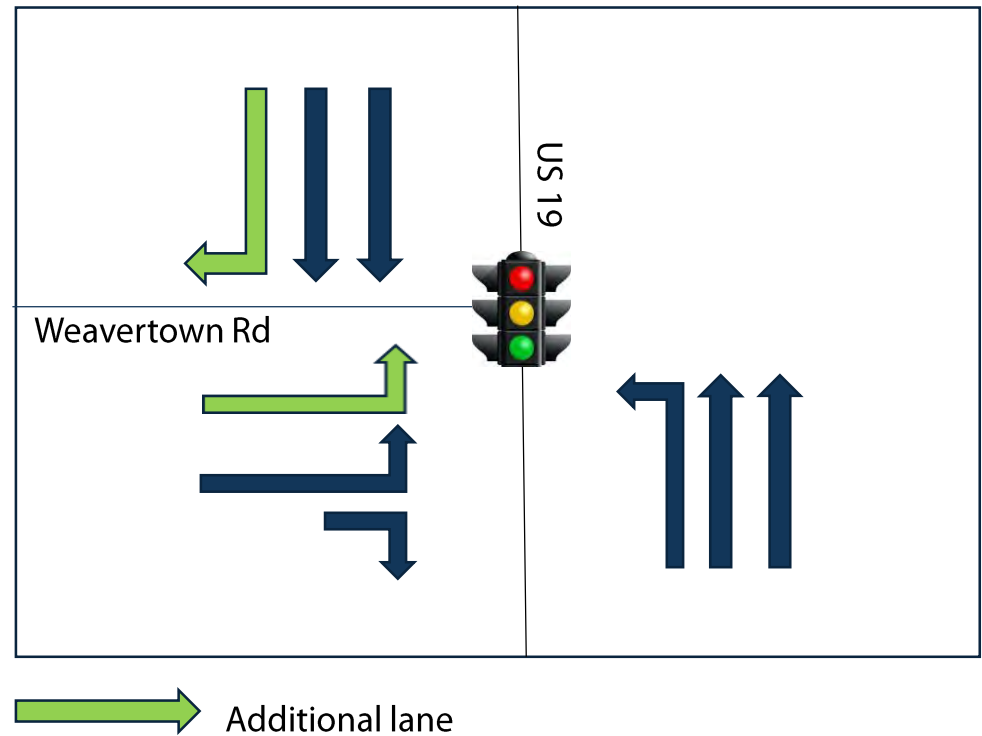
Galley Rd. (SR 1023)/McClelland Rd. (SR 1023) / Washington Road (US 19) (0019-12)



Notes/Concerns:

- EB and WB dual lefts help significantly, but all improvements really necessary for acceptable levels of service. Additional thru requires additional receiving lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.
- Benefits possible connector road from US 19 to I-79

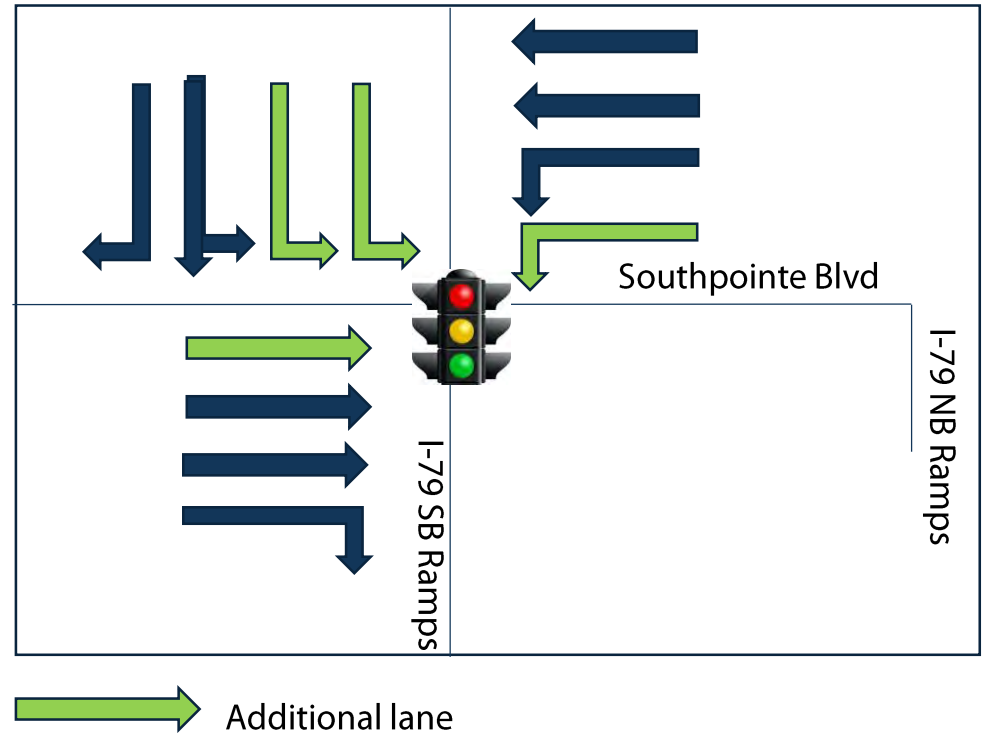
Washington Road (US 19) / Weavertown Rd. (SR 1025) (0019-14)



Notes/Concerns:

- Major movement is dual lefts which would require significant storage. Existing EB right is small widening at the intersection and not true turn lane.
- Adaptive signals would increase flow through the corridor.
- Future transit accommodations should be considered.

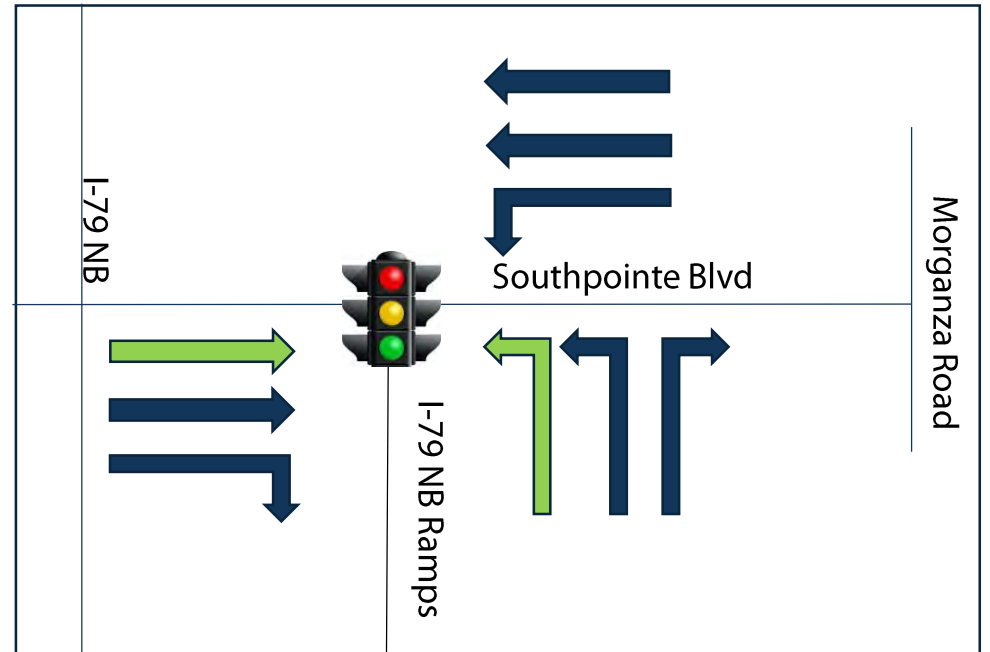
Southpointe Blvd / I-79 SB Ramps (1032-02)



Notes/Concerns:

- Provide an additional EB thru lane and an additional WB left turn lane
- SB approach, two additional left turn lanes to relieve congestion on ramp
- Provide an additional lane for the SB I-79 On-Ramp

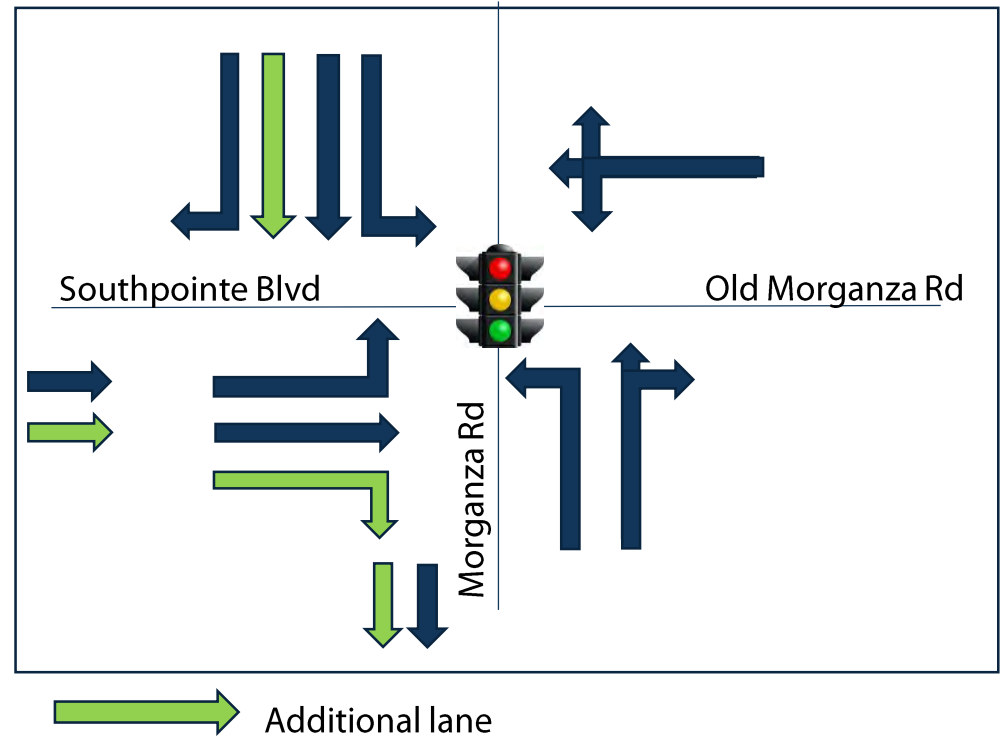
Southpointe Blvd / I-79 NB Ramps (1032-01)



Notes/Concerns:

- Provide 1 additional lane in each direction between ramp and Morganza Road
- Right turn onto ramp becomes an additional lane
- On-ramp to I-79 is only a single lane ramp

Morganza Rd and Southpointe Blvd/Old Morganza Rd (1009-05)



Notes/Concerns:

- SB channelized right continues as an additional lane to the I-79 interchange
- Additional lane from the I-79 interchange becomes an additional EB approach lane
 - EB Lane Arrangement: dedicated left, dedicated thru, dedicated right
- One additional receiving lane on the NB approach to handle the two SB thru lanes

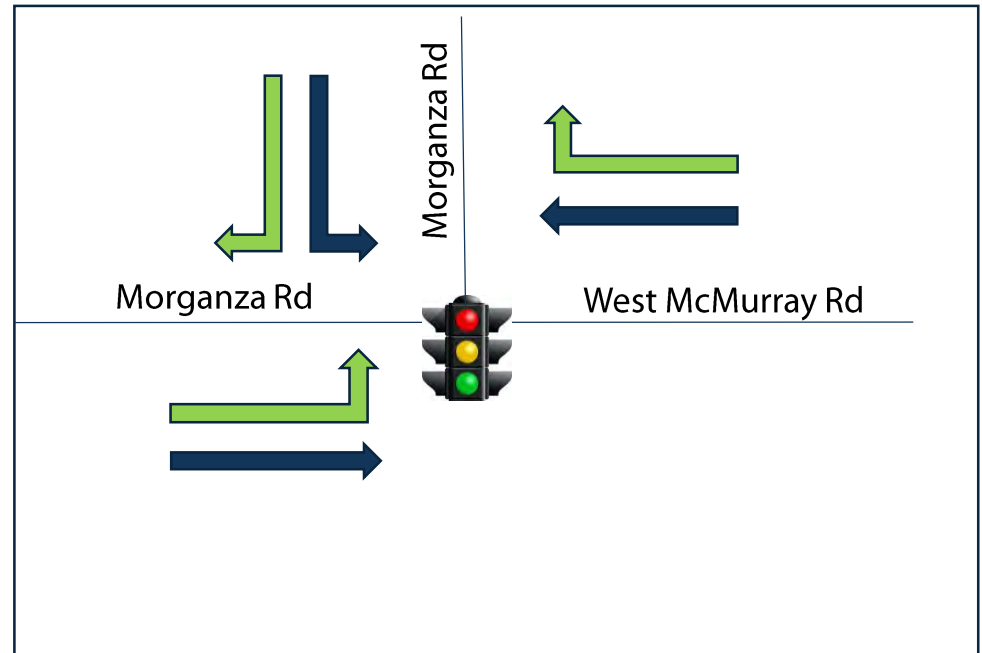
Morganza Rd and Morgan Rd/Baker Rd (1009-02)



Notes/Concerns:

- Improvements planned as part of the Southern Beltway project

Morganza Rd/West McMurray Rd (1009-08)



Additional lane

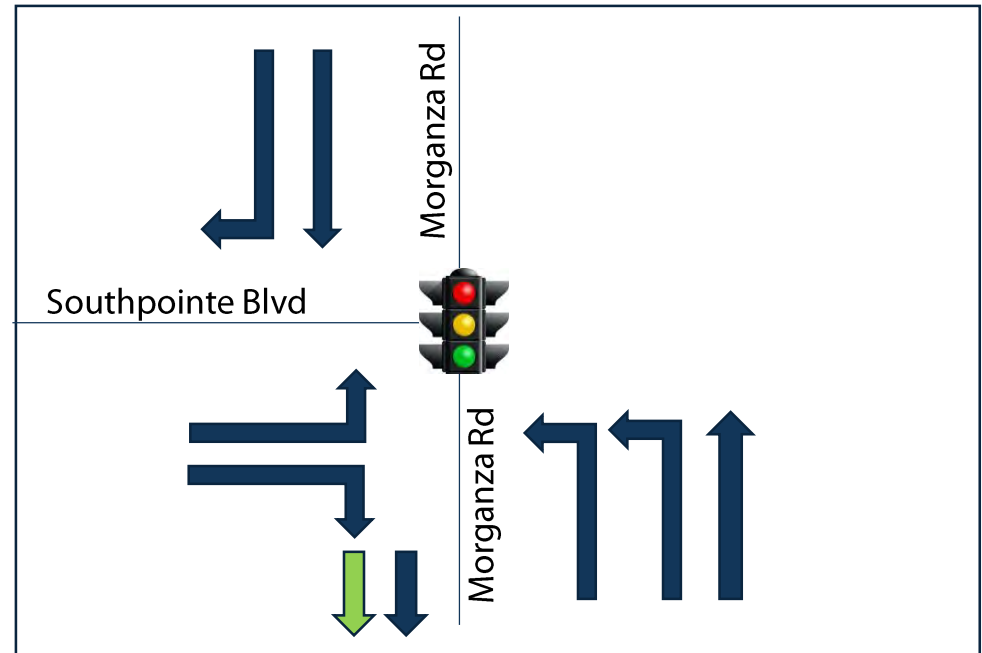


Added signal

Notes/Concerns:

- Intersection meets warrants for an actuated signal system at this location
- Additional turn lane with 150' of storage on all approaches

Morganza Rd/Southpointe Blvd (1009-09)

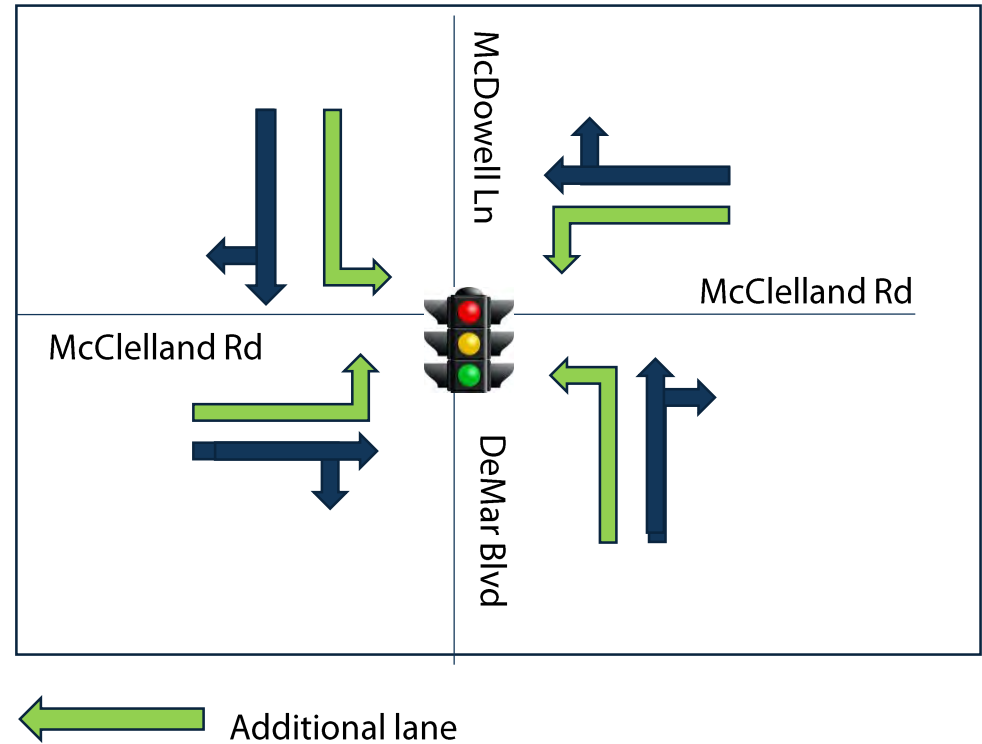


 Additional lane

Notes/Concerns:

- Channelize the EB right turn, and have it turn into a lane add along SB Morganza Rd

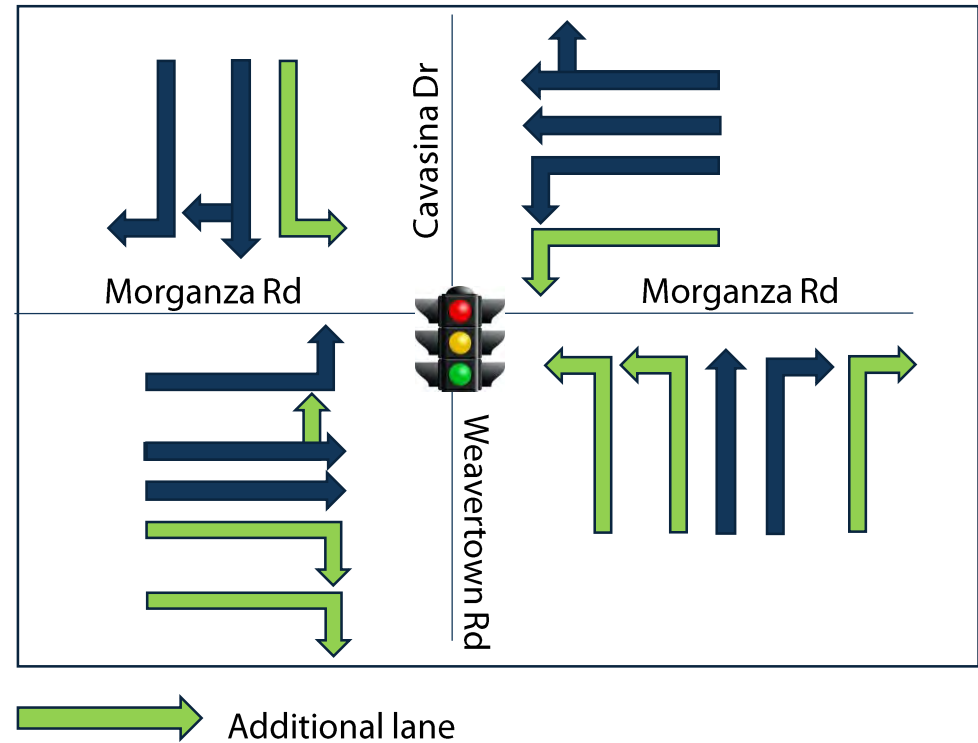
McClelland Rd and McDowell Ln/DeMar Blvd (1023-01)



Notes/Concerns:

- All approaches at this location get an additional dedicated left turn lane with storage of 150'

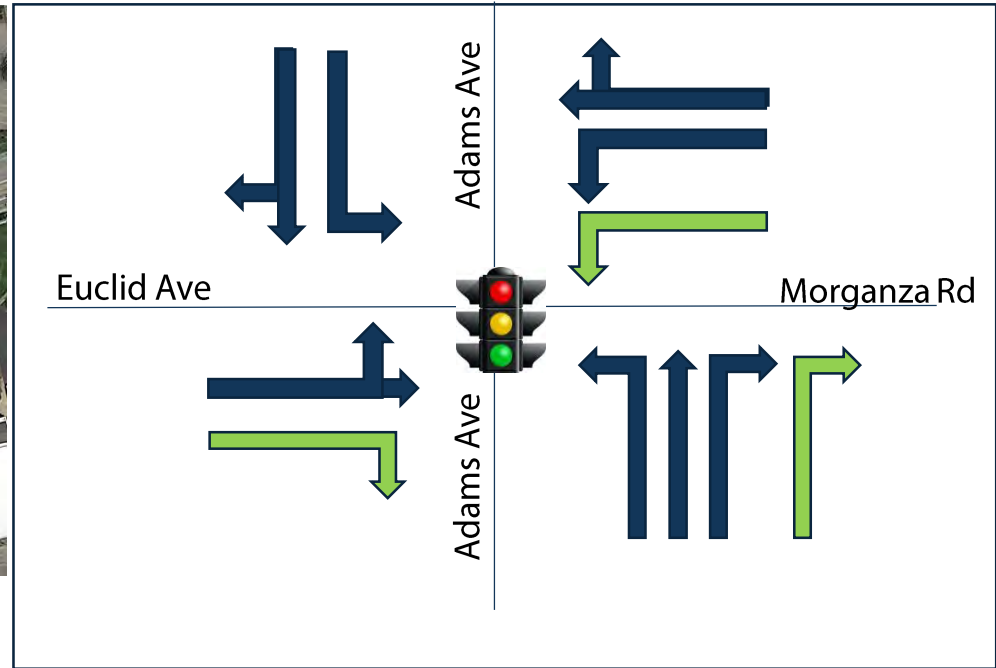
Weavertown Rd/Cavasina Dr and Morganza Rd (1009-12)



Notes/Concerns:

- Additional lanes on all approaches, channelize right turns on NB approach
- 2 NB receiving lanes for the WB dual left turns
- 2 SB receiving lanes to relive congestion getting from Canonsburg to I-79

Morganza Rd/Euclid Ave and Adams Ave (0980-02)

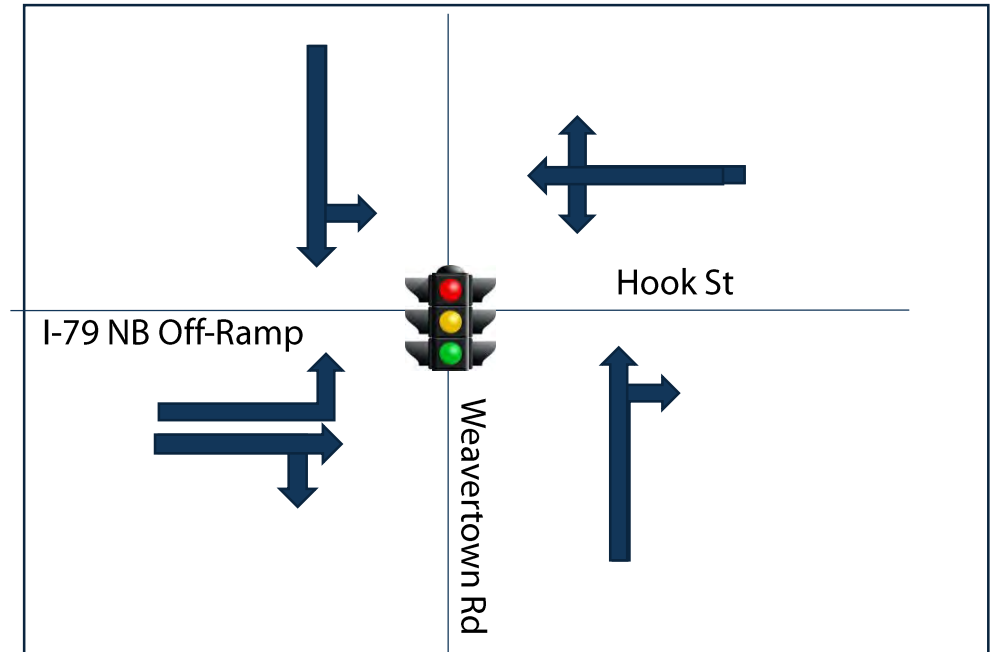


 Additional lane

Notes/Concerns:

- NB approach additional right turn lane, EB approach add a dedicated right turn lane
- Widen the WB approach to help relieve congestion from the Morganza/Weavertown/Cavasina intersection

Weavertown Rd/ I-79 NB Off Ramp/Hook St (1025-02)

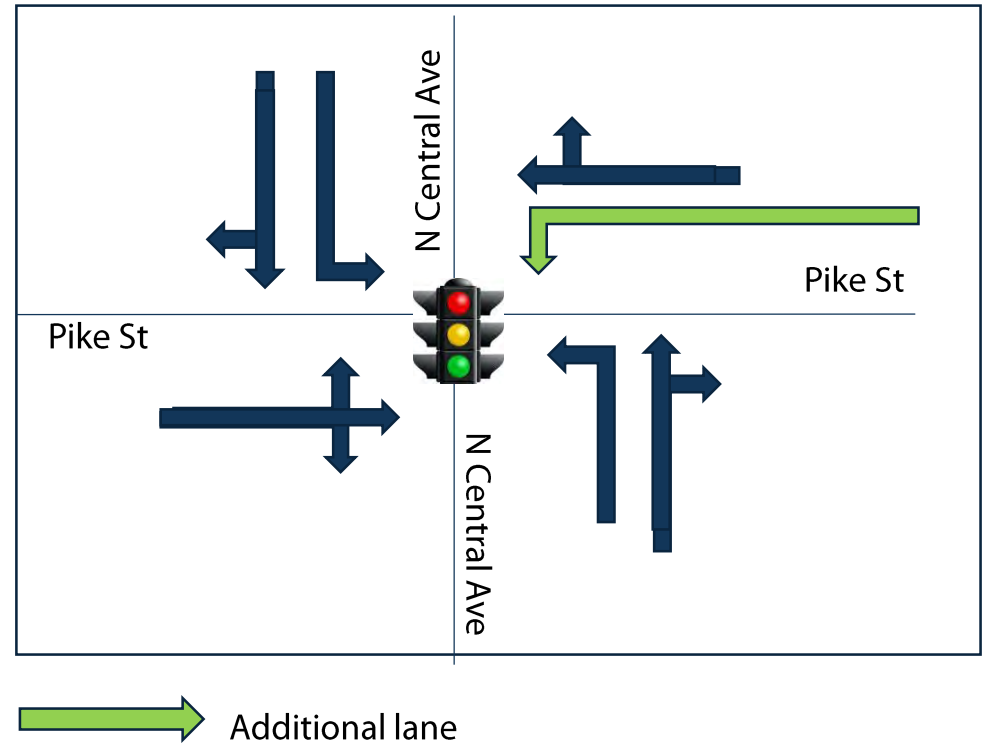


Added signal

Notes/Concerns:

- Intersection meets warrants to put an actuated signal system at this location

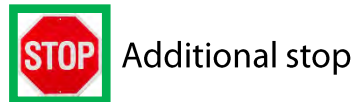
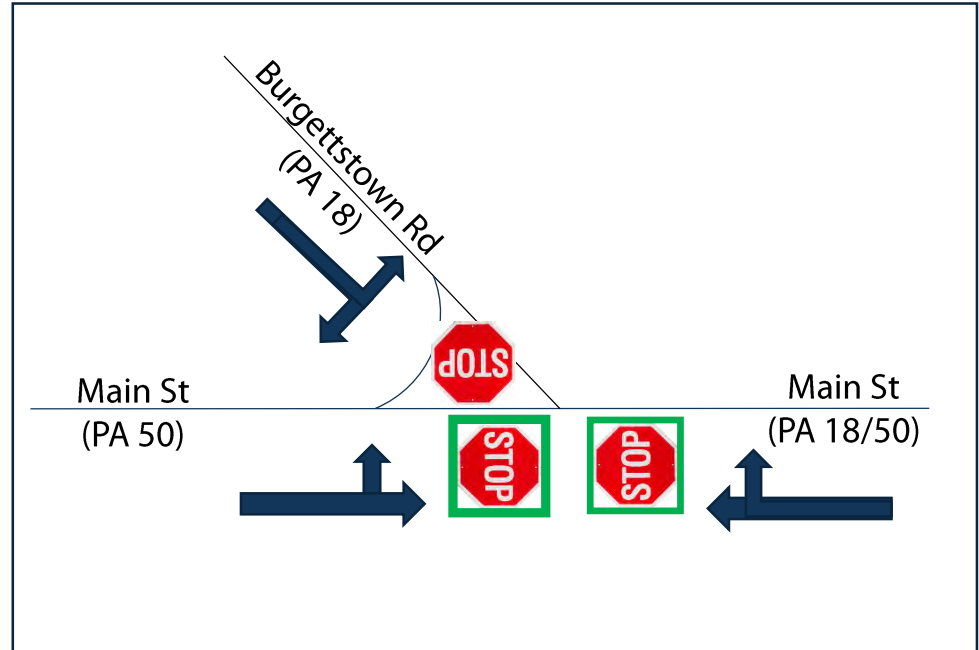
Pike St/ North Central Ave (1009-14)



Notes/Concerns:

- Additional left turn lane that continues from the Morganza Rd/Euclid Ave/Adams Ave/Pike St intersection

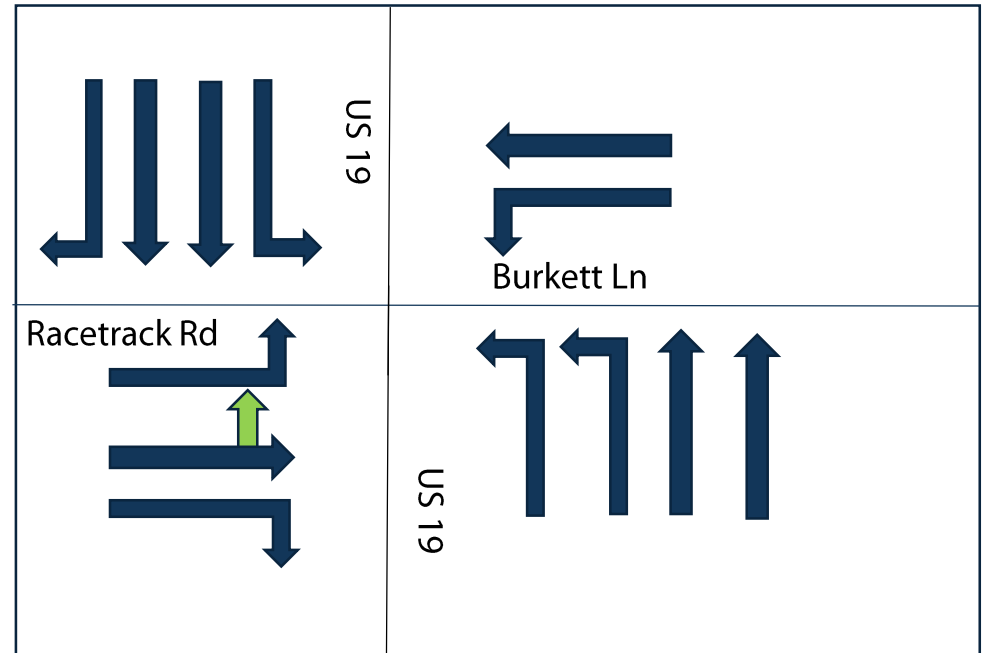
Burgettstown Rd / Main Street (0018-01)




Notes/Concerns:

- Existing safety concern associated with poor geometry
- Further evaluate intersection warrant for all-way stop control
- If warranted, install stop signs on both PA 50 approaches and re-stripe PA 18 approach into single lane.

US 19 / Racetrack Rd / Burkett Ln (0019-16)



 Additional left turn lane (shared thru lane)

Notes/Concerns:

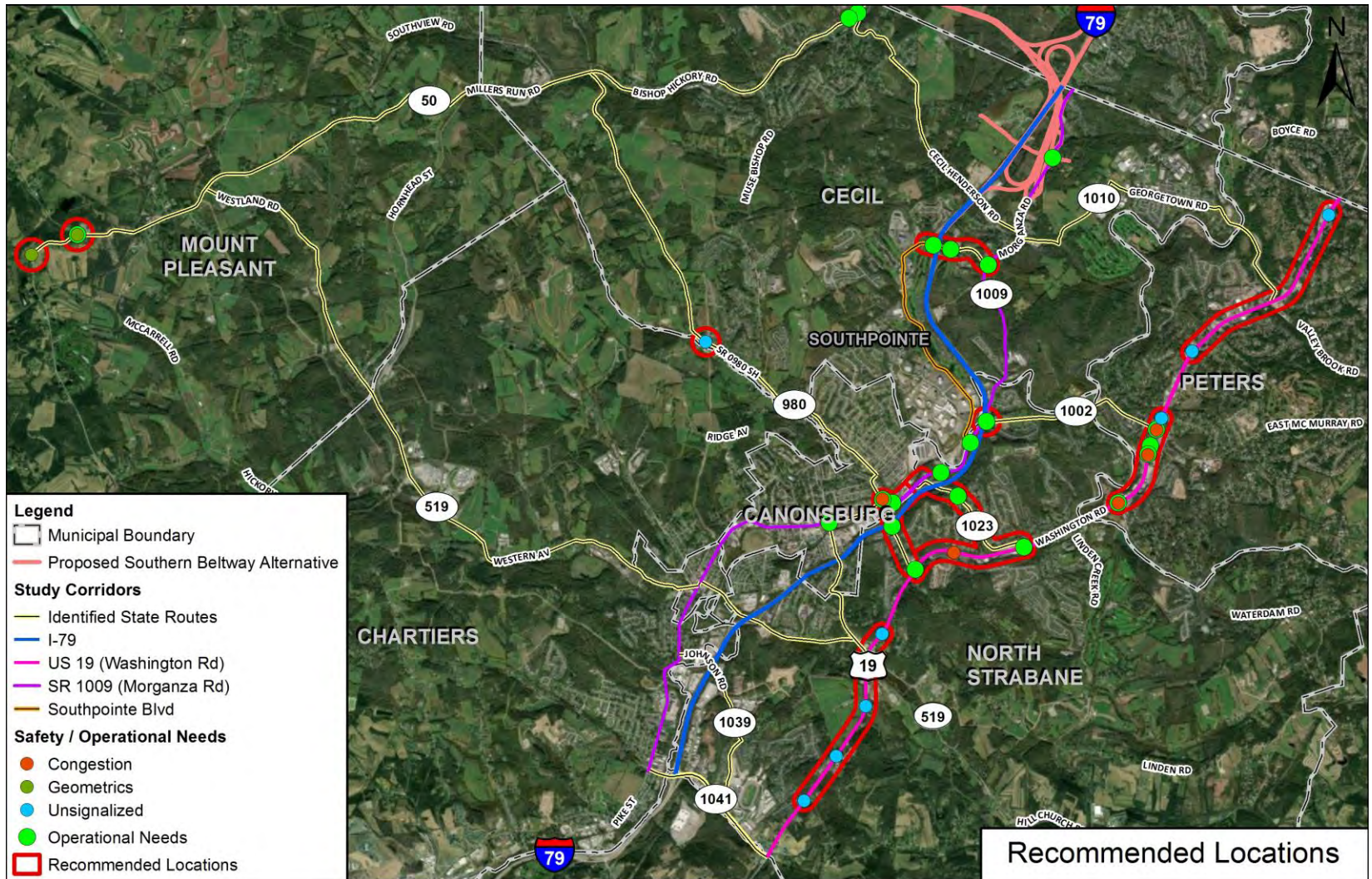
- Re-stripe Racetrack Rd eastbound approach to convert thru lane to shared left/thru lane
- Update traffic signal to provide necessary equipment for split-phased side streets
- Add sidewalks along Racetrack Road

An aerial photograph of a residential area, showing a road, a river, and various buildings. The image is in grayscale and serves as a background for the text.

Recommended Locations for Conceptual Engineering

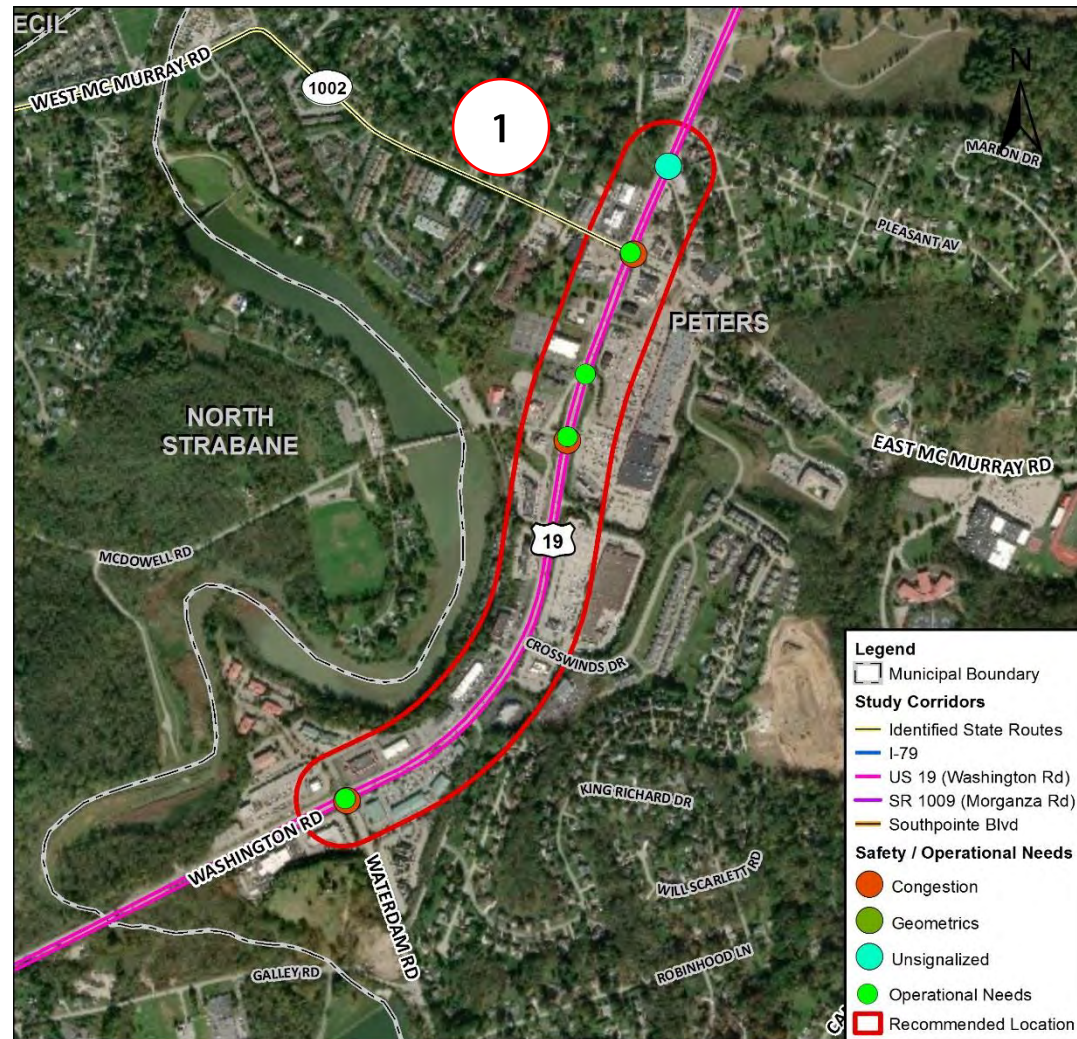
- **Safety and Operational Improvements**

Recommended Locations for Conceptual Engineering



Recommended Locations for Conceptual Engineering

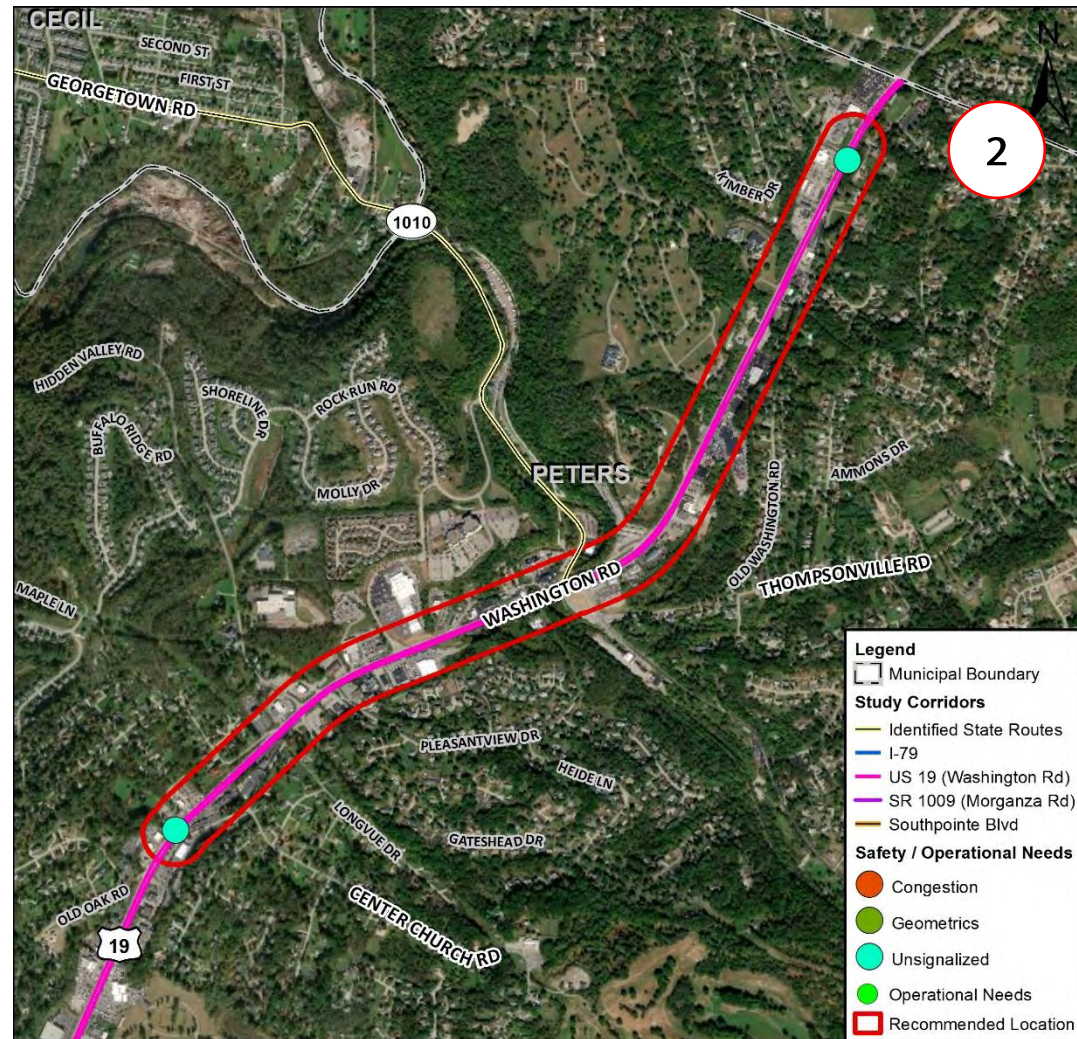
1. US 19 Corridor – Old Oak Road to Waterdam Road
 - Safety and Operational Improvements



Recommended Locations for Conceptual Engineering

2. Northern US 19

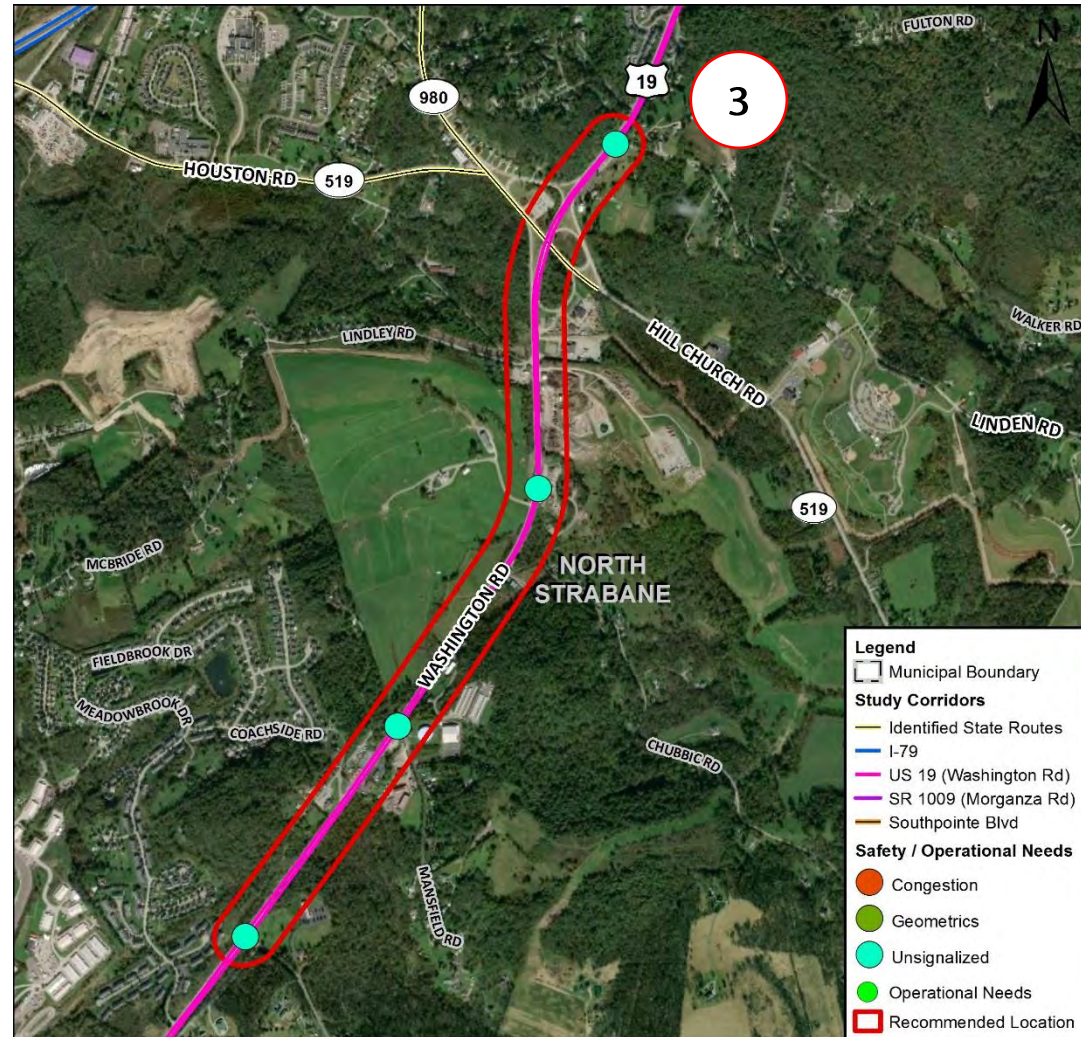
- Safety Improvements



Recommended Locations for Conceptual Engineering

3. Southern US 19

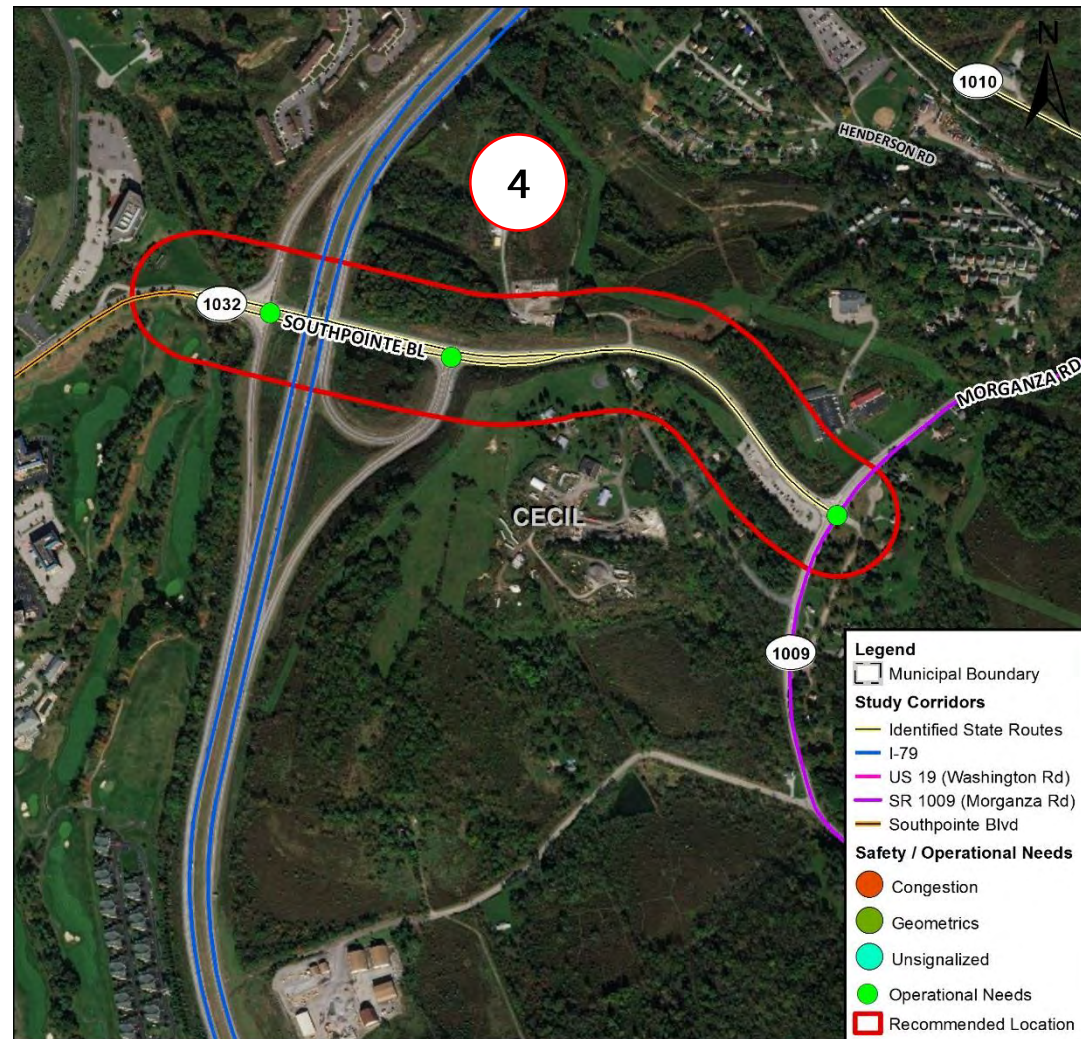
- Safety Improvements



Recommended Locations for Conceptual Engineering

4. Southpointe Blvd – I-79 Interchange to Morganza Road

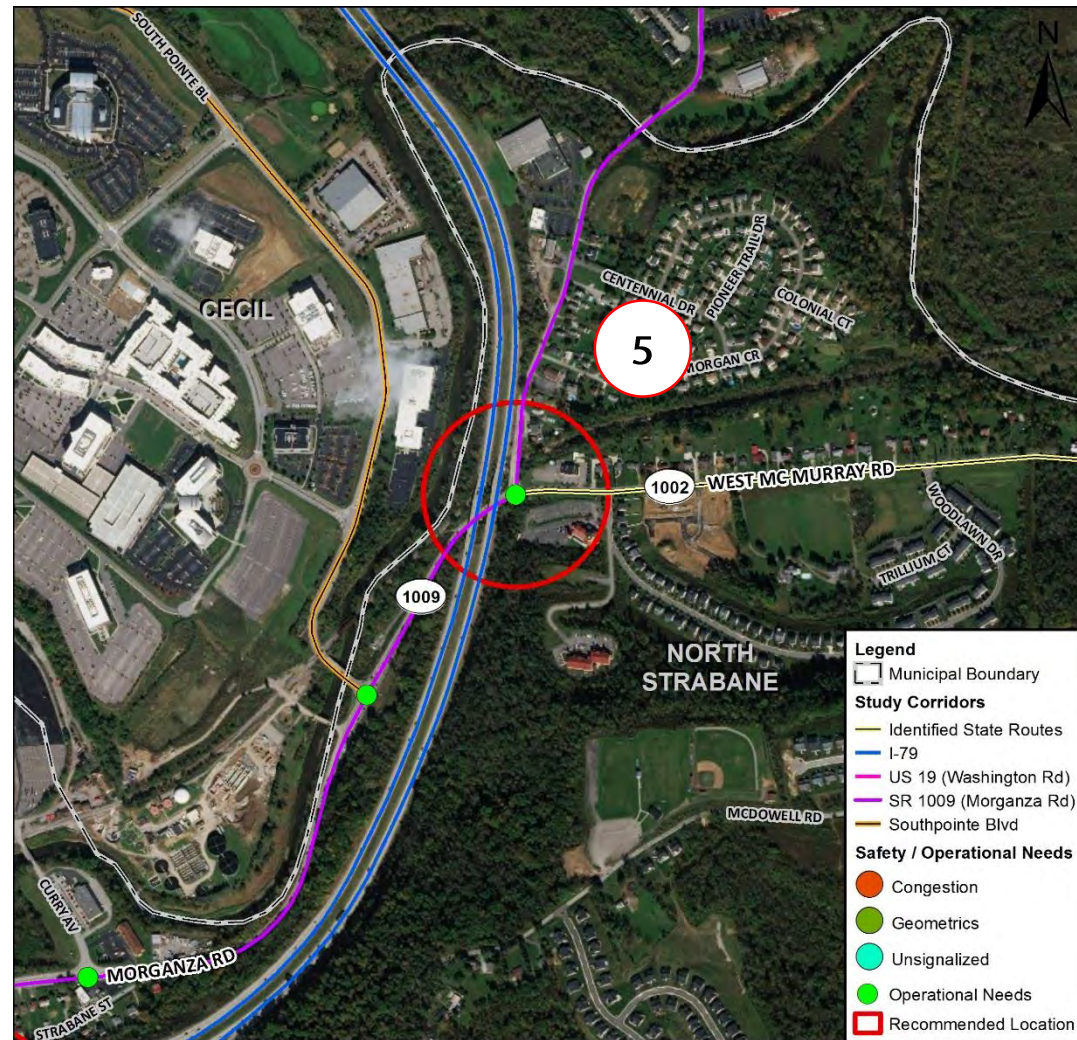
- Operational Improvements



Recommended Locations for Conceptual Engineering

5. Morganza Road & W McMurray Road

- Operational Improvements



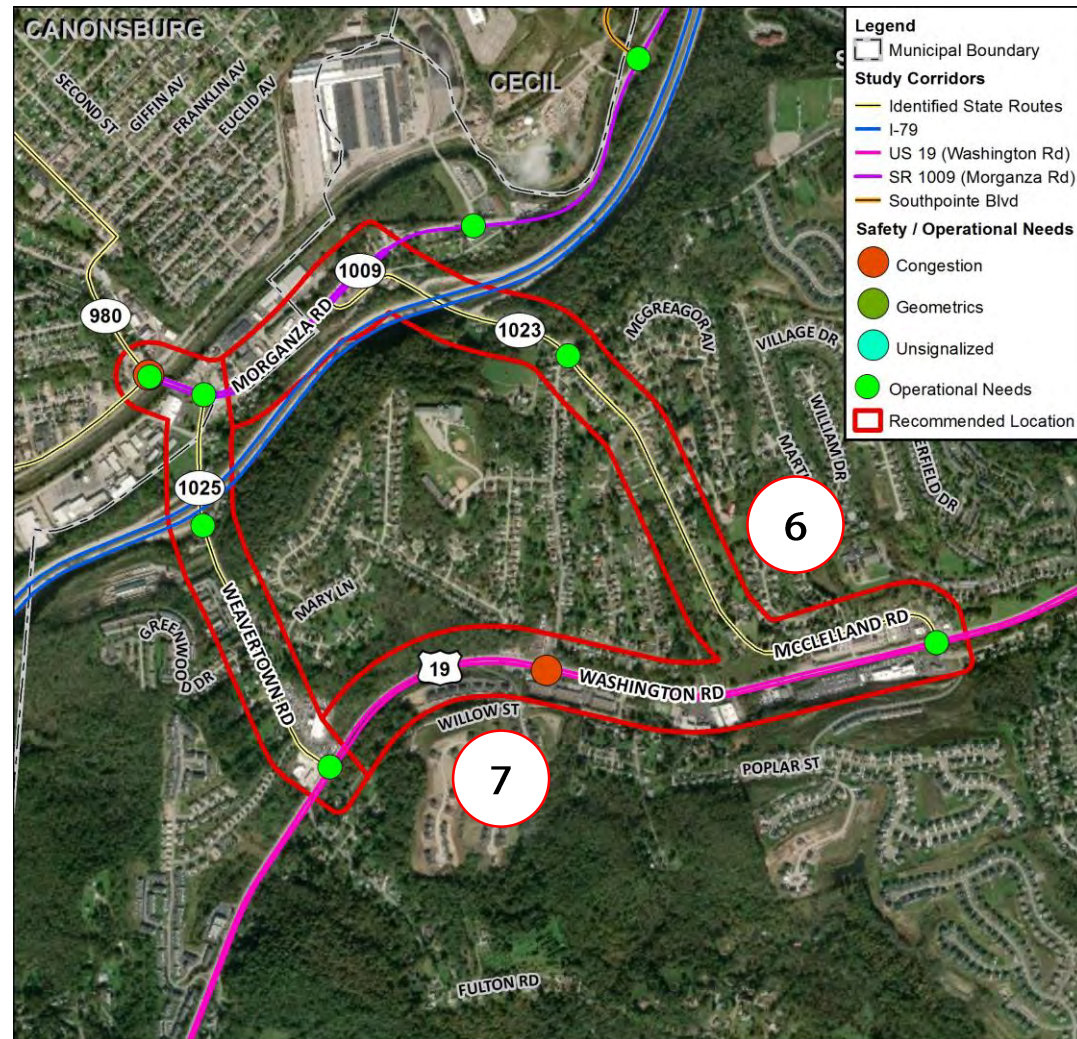
Recommended Locations for Conceptual Engineering

6. US 19 and McClelland Road to Morganza Road

- Operational and Safety Improvements

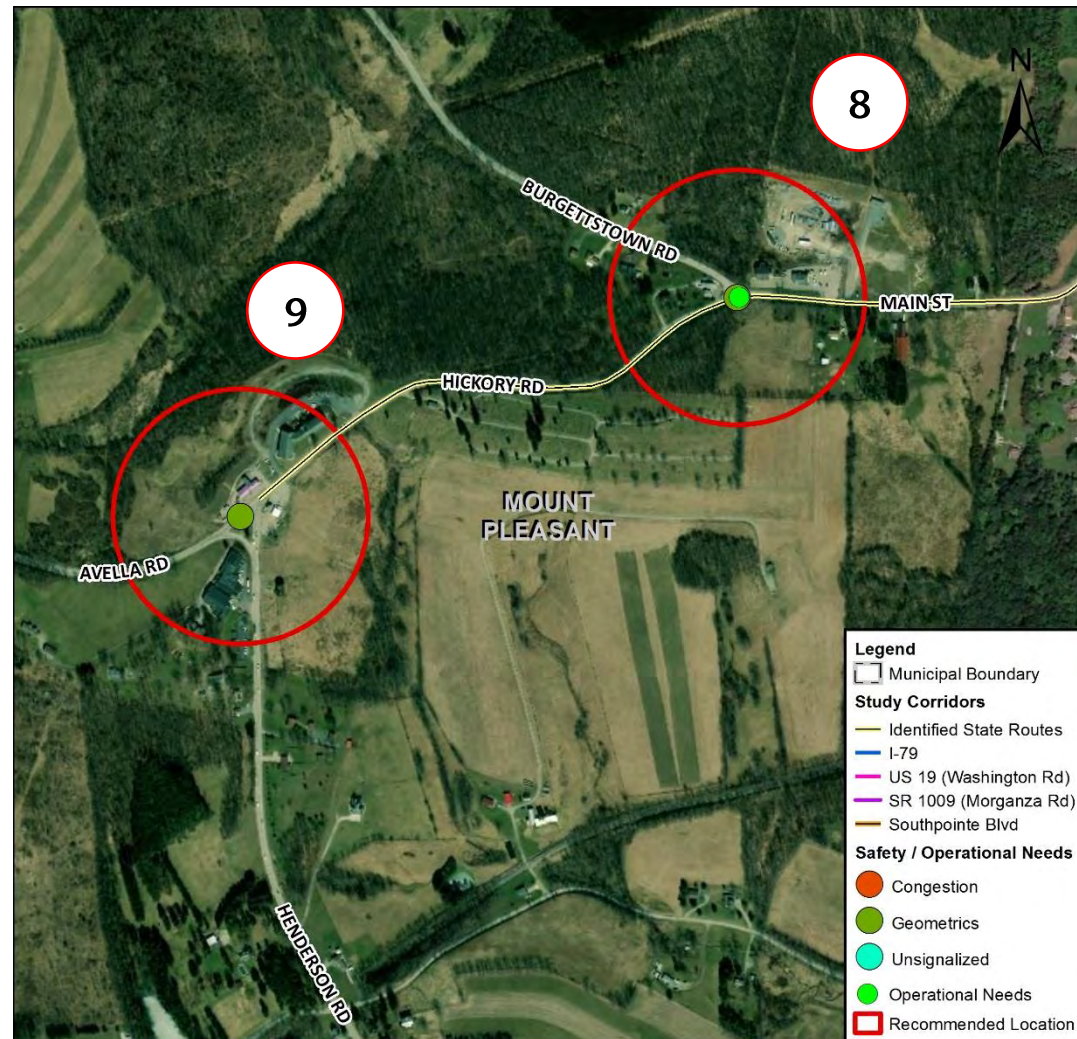
7. Weavertown Road to Morganza Road

- Operational and Safety Improvements



Recommended Locations for Conceptual Engineering

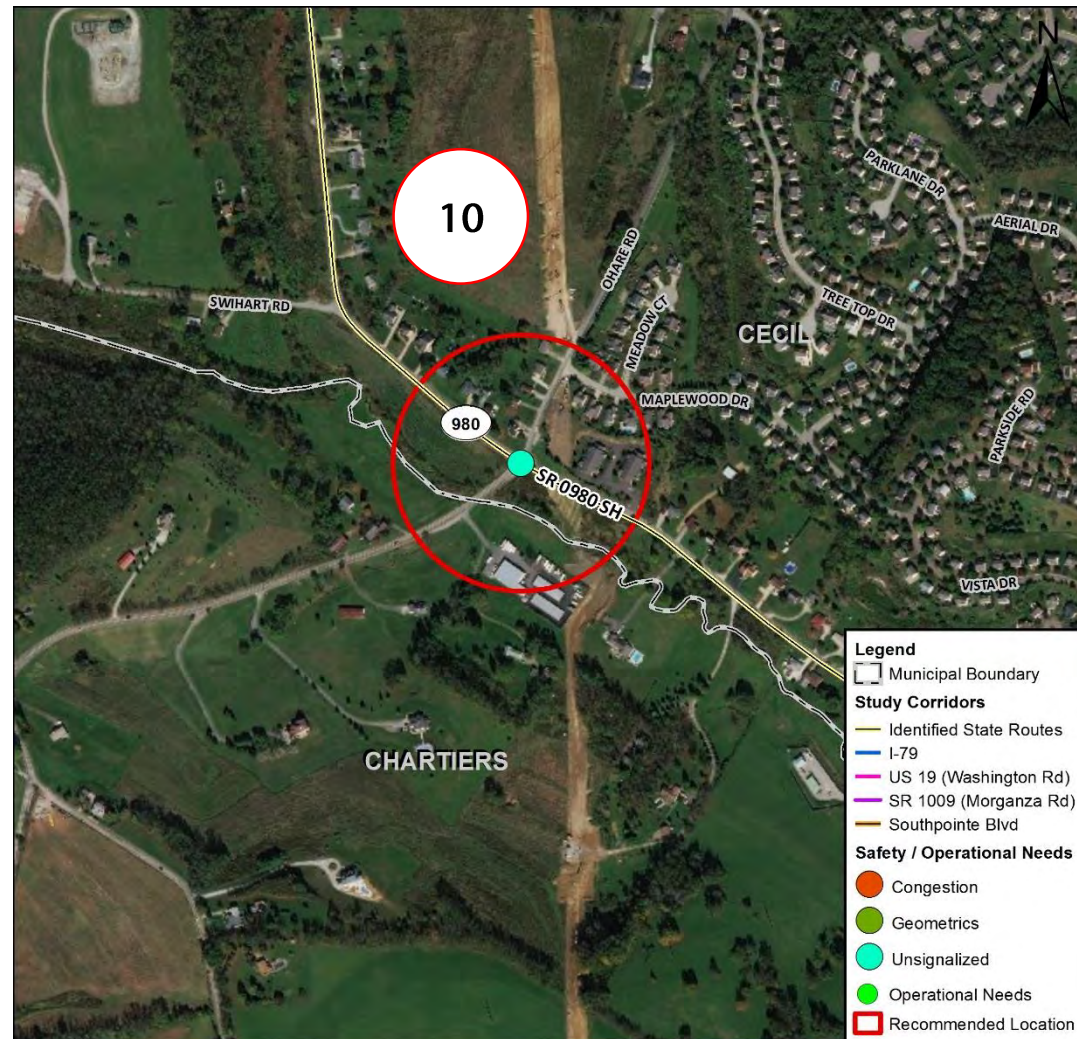
8. SR 18 – Burgettstown Road
 - Safety and Operational Improvements
9. SR 18 – Henderson Road & Avella Road
 - Safety Improvements



Recommended Locations for Conceptual Engineering

10. SR 980 / OHare Road

- Safety Improvements

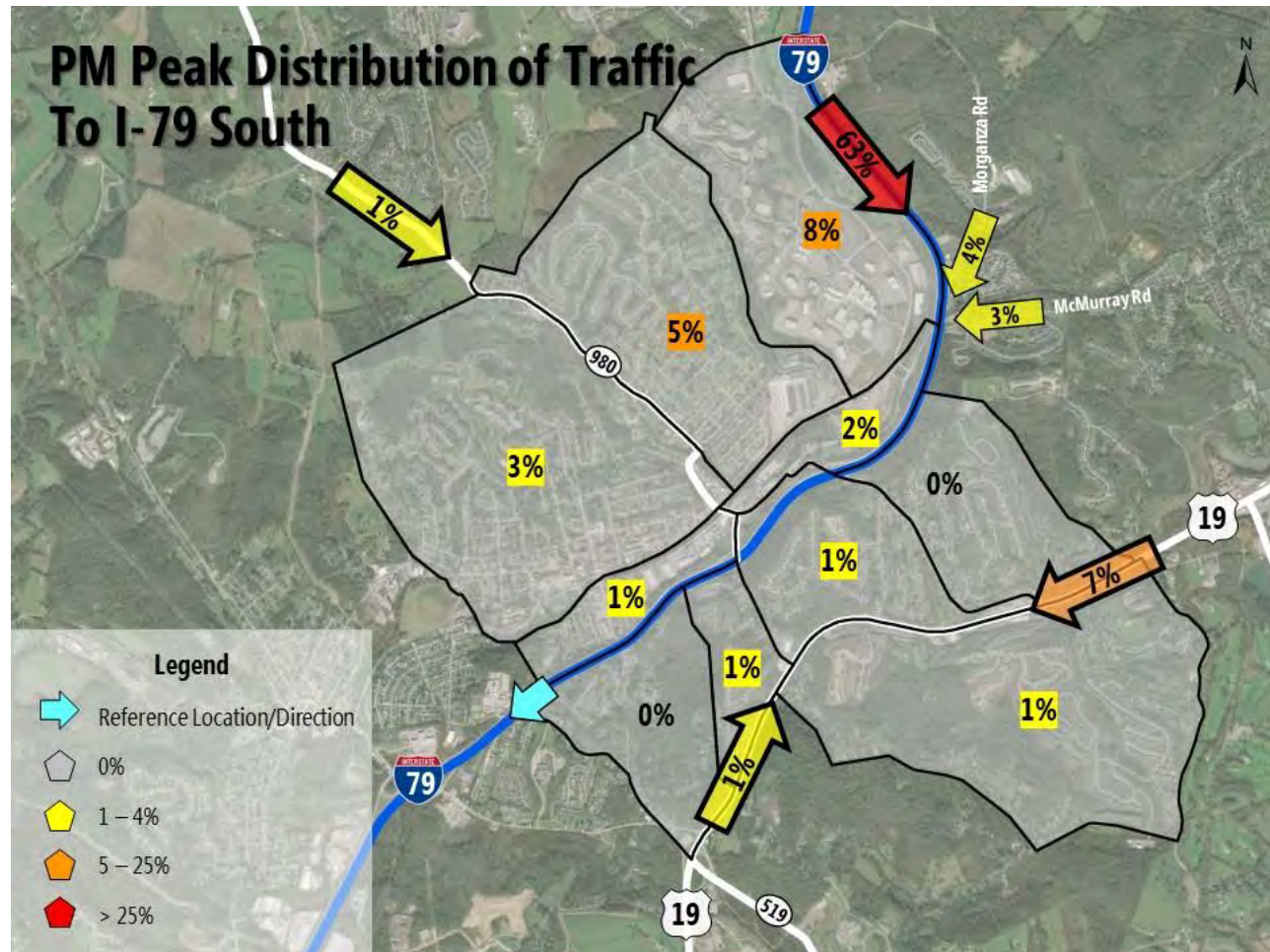


Mobility Analysis

- **Origin and Destination Analysis**

Mobility Analysis– Origin / Destination

- Significant traffic to I-79 from Southpointe area and US 19
- Could benefit from C-D road along I-79 and upgrades to E/W roads between US 19 and I-79



Next Steps

- **Conceptual Engineering**
- **Multimodal Improvements**
- **Estimated Cost and Financing Options**
- **Public Workshop**



Northern Washington County Corridor Based Transportation Plan

PUBLIC MEETING

November 8, 2018

Tonight's Agenda

- **Project Overview**
- **Stakeholder and Public Input**
- **Existing and Future Conditions**
- **Safety, Operational and Mobility Needs**
- **Conceptual Engineering**
- **Next Steps**
- **Your Input / Feedback**

An aerial photograph of a suburban area, showing a road, a river, and residential buildings. The image is in grayscale and serves as a background for the text.

Project Overview

Study Purpose

Study Intersections and Corridors

Goals and Objectives

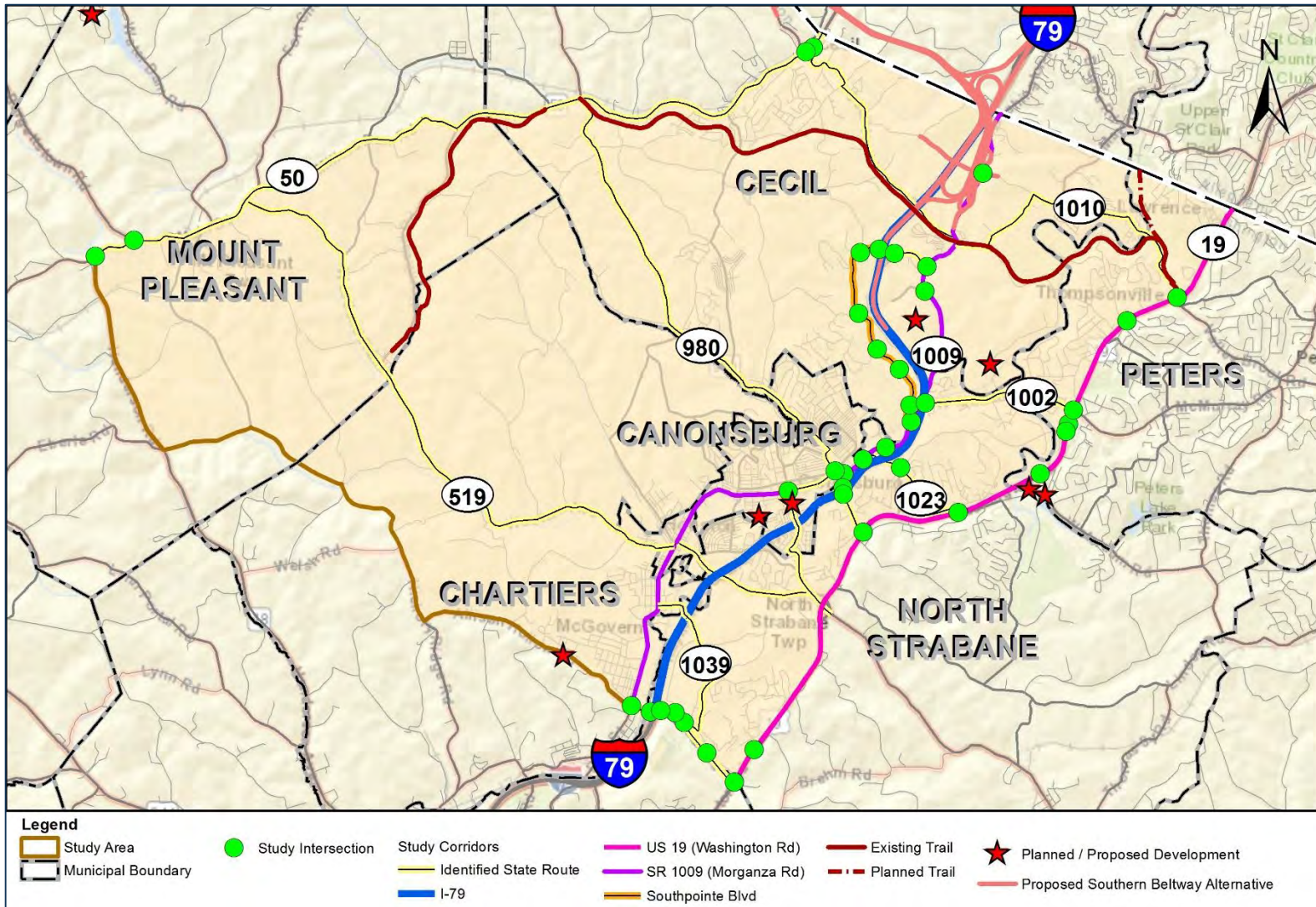
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Evaluate the study corridors and intersections within the Study Area to identify short-term and long-term improvements that satisfy the goals and objectives of the Study.

Project Overview



Project Overview

GOALS AND OBJECTIVES

- Improve Safety
- Reduce Congestion
- Improve Connectivity
- Mitigate Deficiencies
- Integrate Signal Improvements
- Identify Funding Options

Project Overview

STUDY PROCESS

- Analyze existing and future conditions
- Identify Safety Concerns
- Evaluate Mobility and Accessibility
- Recommend short-term and long-term improvement projects
- Identify potential funding sources and strategies

An aerial, grayscale photograph of a suburban neighborhood. A multi-lane road curves through the center of the image. The surrounding area is filled with residential streets, houses, and some larger commercial or institutional buildings. The overall scene depicts a typical suburban development.

Stakeholder and Public Input

Stakeholder and Public Input

STAKEHOLDER INPUT

- Stakeholder Meetings
 - January 2018
 - August 2018

PUBLIC INPUT

- Public Meetings
 - March 2018
 - Tonight's Meeting

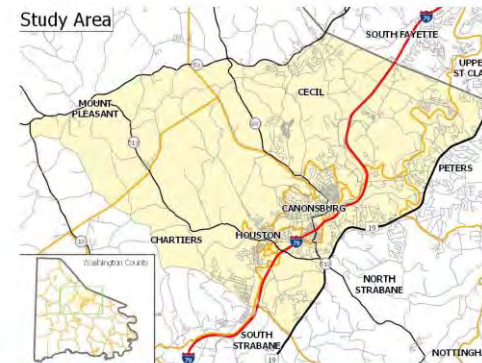
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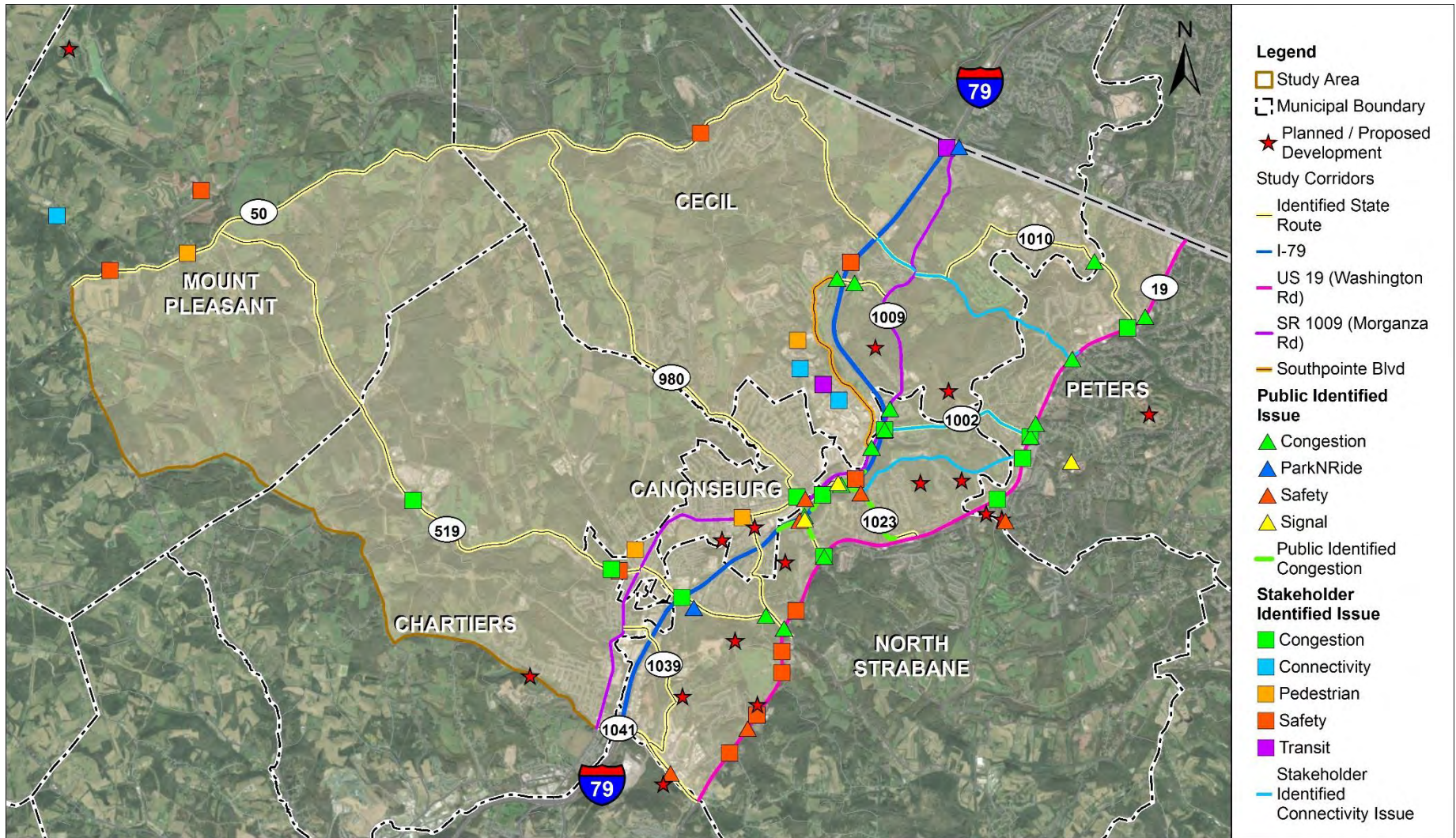
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Existing and Future Conditions

Operational Analysis

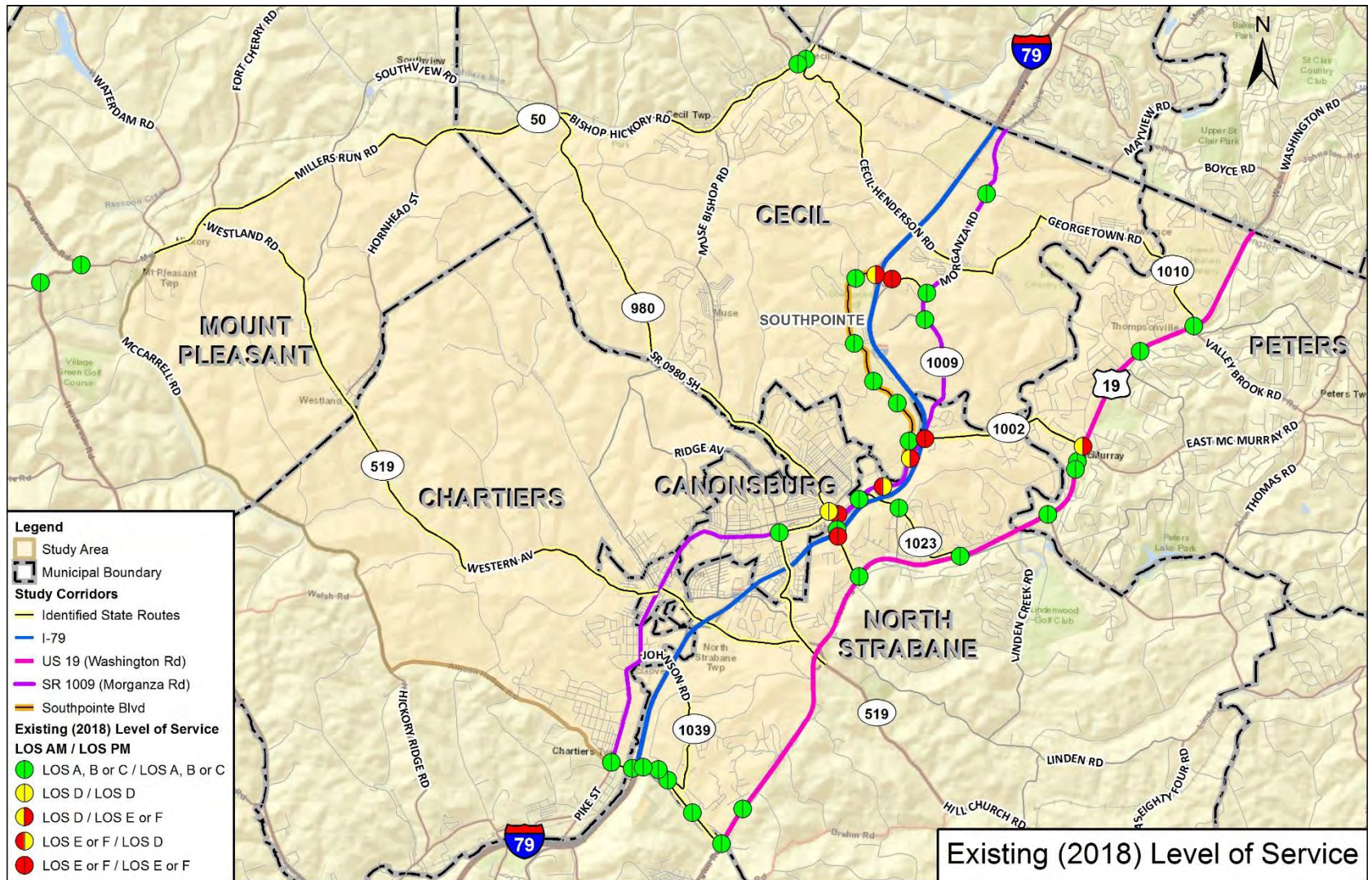
Safety Concerns

Mobility and Accessibility

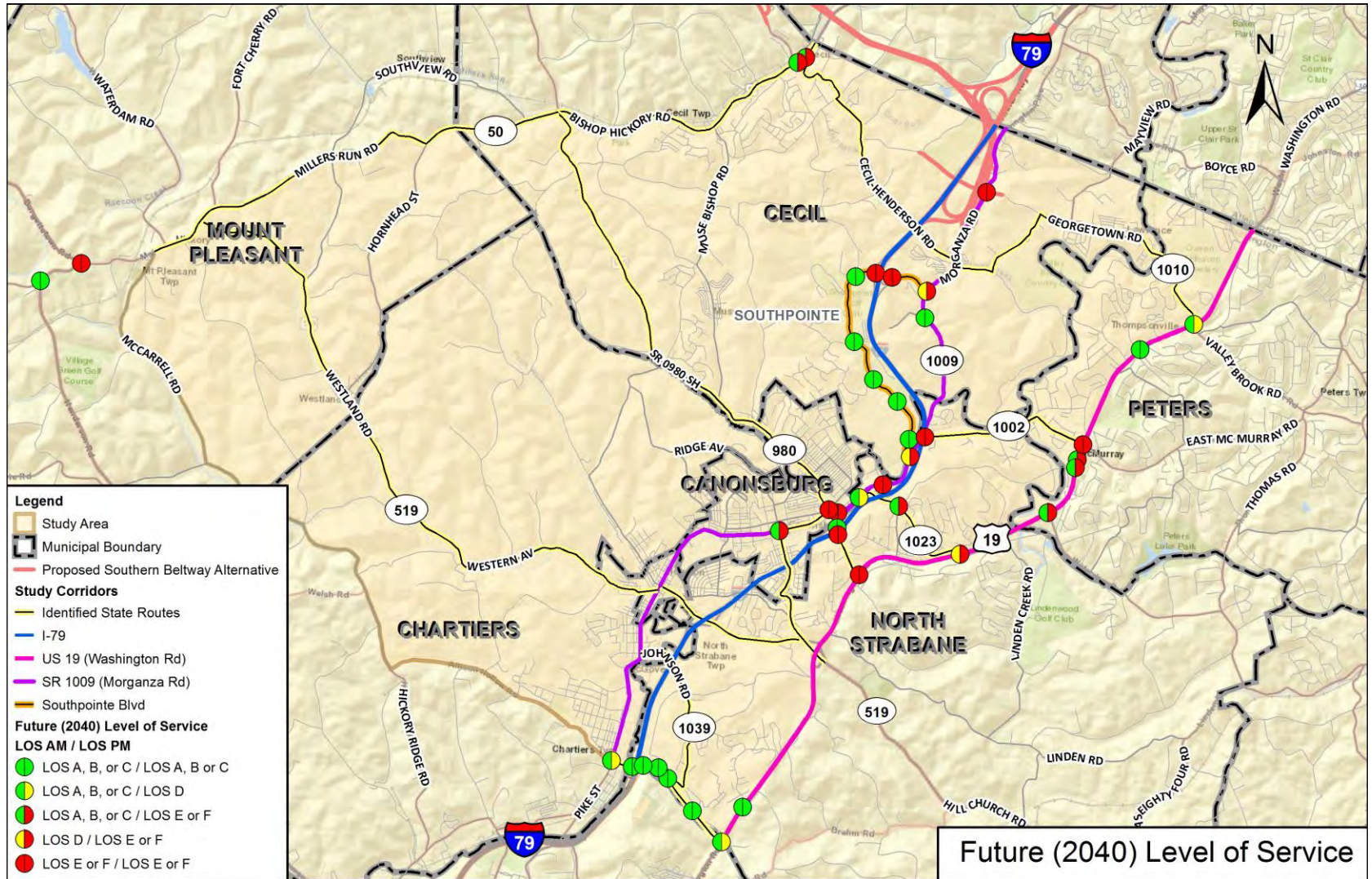
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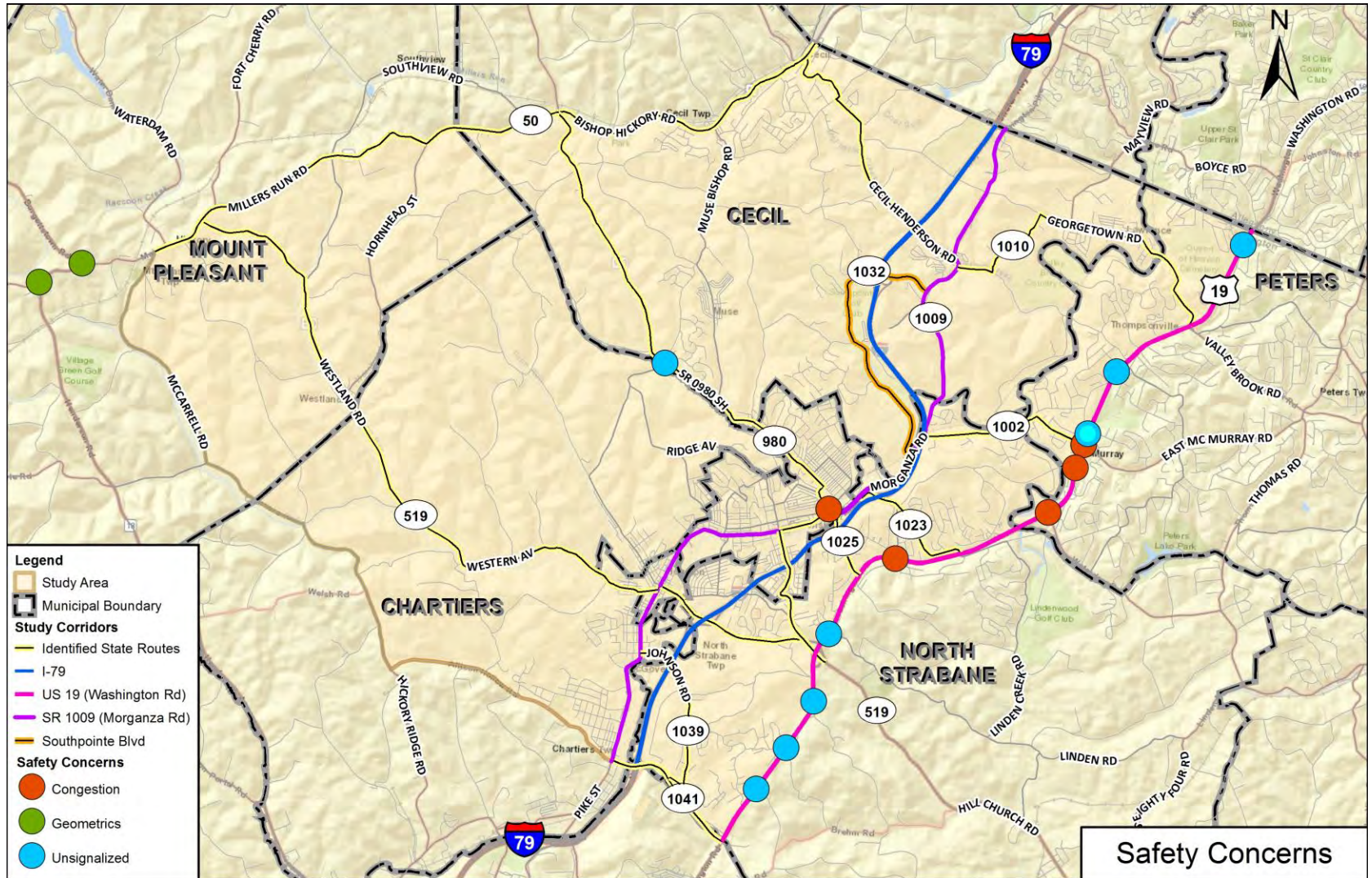
Existing Level of Service



Future Level of Service



Existing Safety Concerns



Existing Mobility and Accessibility

EXISTING BICYCLE & PEDESTRIAN FACILITIES

- Montour & Chartiers Creek Trail
- Sidewalks limited to Canonsburg and Houston main streets
- Gaps remain in the sidewalk network



Montour Trail. Photo Courtesy <http://montourtrail.org>

TRANSIT SERVICE

- Metro Commuter Line along Route 980
 - Service between Canonsburg and City of Washington is productive and efficient
- Freedom Line Bus Service along Route 79
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 - 2 more Park n' Rides exist with no transit connections



An aerial photograph of a highway interchange and surrounding residential area. The highway is a multi-lane road with a central median, curving through the landscape. The surrounding area is densely packed with houses and streets, typical of a suburban or residential development. The overall tone is muted, with a light gray overlay.

Safety, Operational and Mobility Improvements Evaluated

Safety Improvements

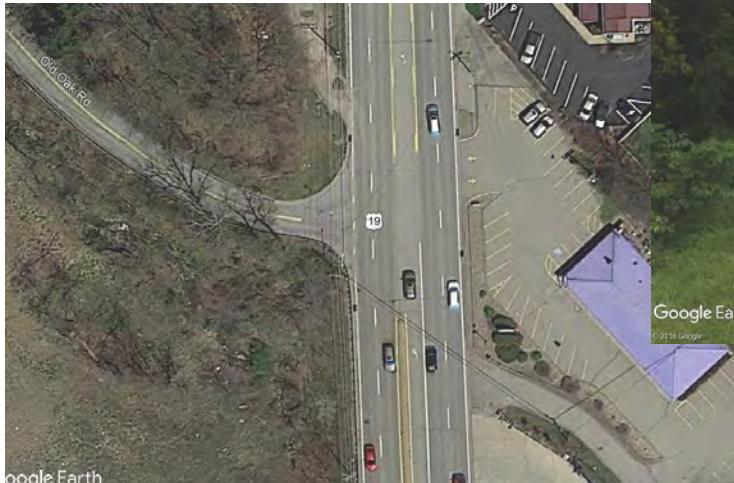
Operational Improvements

Mobility Improvements

Safety Improvements

SAFETY IMPROVEMENTS EVALUATED

- Geometric Improvements
- Unsignalized Intersection Mitigation
- Access Management Strategies



Operational Improvements

OPERATIONAL IMPROVEMENTS EVALUATED:

- Adaptive traffic signals
- Adding and/or extending turning lanes
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- Connector road



Mobility Improvements

TRANSIT IMPROVEMENTS EVALUATED:

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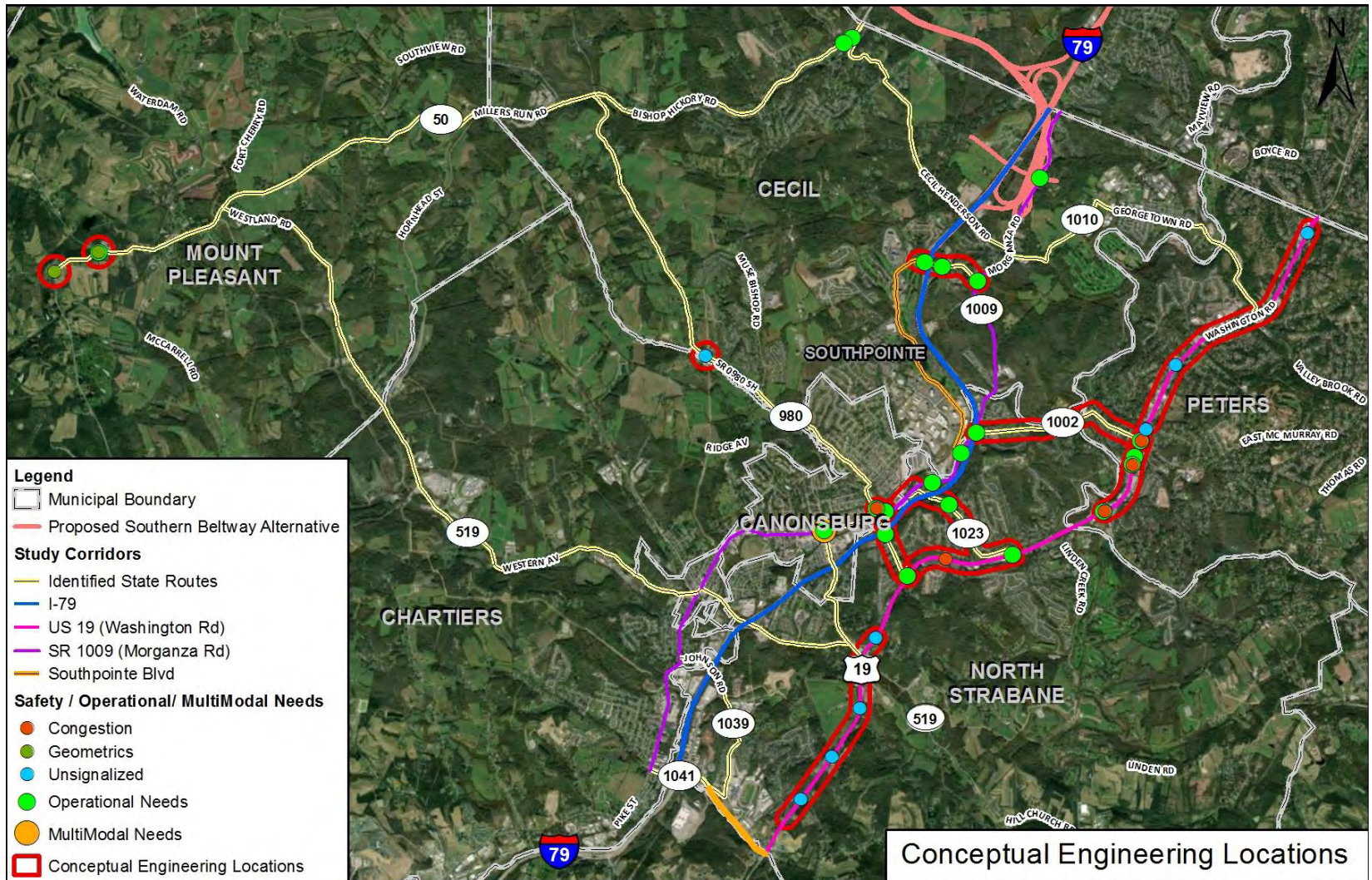
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Conceptual Engineering

- **Conceptual Engineering Improvements**
- **Multimodal Improvements**
- **Implementation**

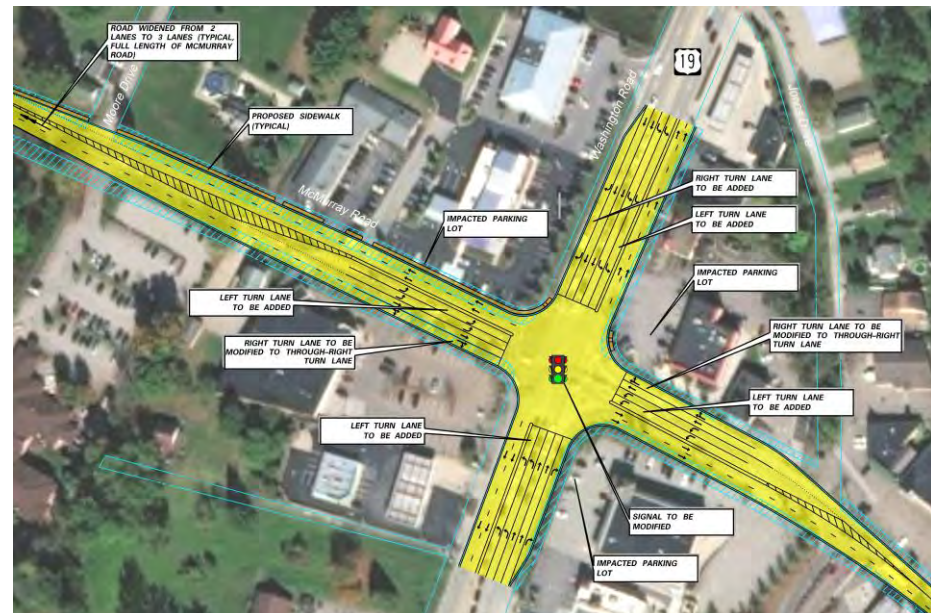
Conceptual Engineering Locations



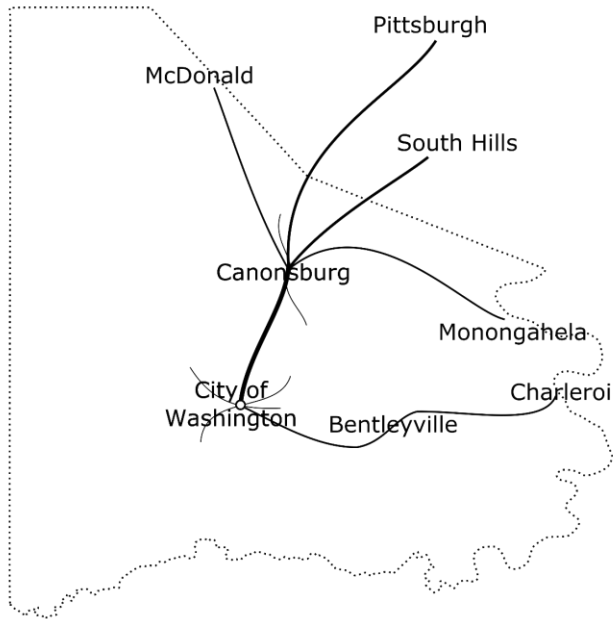
Conceptual Engineering Improvements

CONCEPTUAL ENGINEERING IMPROVEMENTS:

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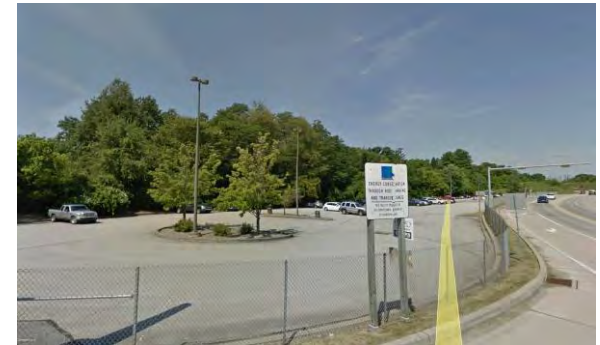


Multimodal Improvements



SHORT TERM

- Reallocate some midday and evening Metro service from Downtown Pittsburgh to South Hills Village
- Add Local 'C' service between Southpointe and Canonsburg
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 - Allow space for sidewalk improvements and bus shelter



Multimodal Improvements (continued)



MEDIUM-TERM

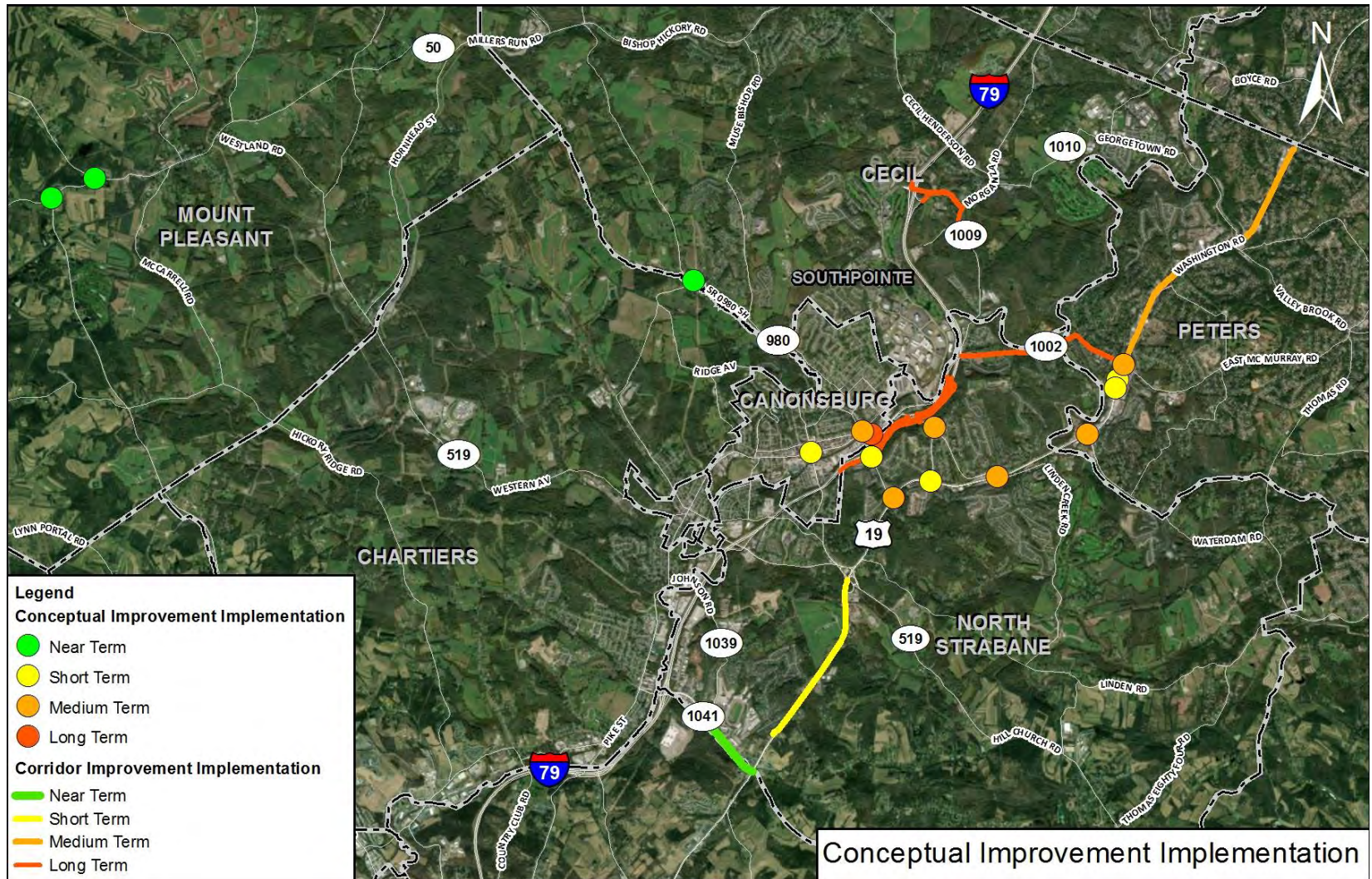
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Proposed operational improvements at **Pike St/Central Ave, Adams/Morganza Rd, along Morganza Rd & along Route 19** would **lay the groundwork for future transit improvements** in the area.

Conceptual Improvement Implementation

Implementation	Estimated Cost	Number of Improvements
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Conceptual Improvement Implementation



Next Steps

- **Identify Funding Strategies**
- **Incorporate Public Comments**
- **Finalize Study Report**

Input / Feedback

- **Your input is important**
- **Complete a Comment Form**
- **View the Exhibits**
- **Talk with the Project Representatives**
- **Ask us questions – We're here to assist you**

Thoughts?
Questions?



Northern Washington County Corridor Based Transportation Plan

Public Workshop Summary

Public Workshop No. 2 | November 8, 2018 | 5:00 PM – 7:00 PM

Chartiers Municipal Building

Attendees

See attached sign-in sheet

Workshop Exhibits

- Study Overview
- Conceptual Improvement Locations
- Conceptual Improvements

Workshop Purpose

The purpose of the Workshop is to review progress to date and gather public input on the Northern Washington County Corridor Based Transportation Plan and the Washington County Transit Development Plan. Upon receiving public input from this meeting, both plans will be amended into the Washington County Comprehensive Plan.

I. Welcome / Introductions

- SPC – Andy Waple, Daniel Alwine
- Michael Baker International – Max Heckman, Lu Ann May, Jessica Belowich, Akshali Gandhi
- Moore Design Associates –Marilyn Gelzhiser

II. Project Overview and Conceptual Improvements

Max Heckman began the meeting explaining that the planning study has been shaped with input gathered in public and stakeholder meetings held in January, March, and August 2018, as well as today's meeting. The presentation provided a project overview; stakeholder and public input gathered to date; existing and future conditions; identified safety, operational and mobility needs; and concluded with a discussion of the conceptual engineering improvements recommended.

III. Public Input

Attendees were encouraged to ask questions and provide comments on the conceptual improvements presented. The following questions/comments were asked by the attendees:

Q/C: Does the future Level of Service results include the planned Southern Beltway Improvements

A: Yes

Q/C: State Senator Camera Bartolotta asked if any proposed improvements were in the Mon Valley.

A: The study area covers Northern Washington County and does not extend to the Mon Valley. However, a related companion study, the Washington County Transit Development Plan, does address connections to the Mon Valley.



- Q/C:** Additional turning lanes and limiting turns on Weavertown Road has really improved congestion at that intersection.
- A:** That has helped, but the intersection is projected to get worse over time. The study looked at additional improvements to that intersection.
- Q/C:** Since most improvements are on State roads, do local municipalities assist with funding?
- A:** Peters Township uses traffic impact fees to supplement project improvements. Matched local funding can leverage state funds and accelerate a project, giving it a competitive edge.
- Q/C:** North Strabane is considering a traffic impact fee; how does the money get to PennDOT?
- A:** When local government brings funds to the table, the project is more attractive to SPC and PennDOT.
- Q/C:** Mt Pleasant commented there are ongoing safety issues at the intersection of Avella Road and SR 18 (Concept Location #9).
- A:** Near term solutions for that intersection include advance warning signs, lighting and shoulder widening. Additional longer term solutions can be evaluated.
- Q/C:** Mt Pleasant also expressed safety concerns at the intersection of Burgettstown Road and SR 18 (Concept Location #8). The issue is likely due to the sharp turn at Burgettstown and controlling access into the gas station.
- A:** A 3-way stop sign was recommended at that location.
- Q/C:** Mt Pleasant is interested in near term fixes in the municipality.
- A:** Municipalities should advise SPC when PennDOT is doing maintenance work in the area; there may be potential to combine maintenance with the near-term fixes.
- Q/C:** What is the designation of the sidewalk on Racetrack Road?
- A:** The sidewalk is considered a near-term improvement.
- Q/C:** Transportation goals stated in local municipal comprehensive plans should be incorporated into the study.



Northern Washington County Corridor Based Transportation Plan Public Workshop

Michael Baker
INTERNATIONAL

November 8, 2018

NAME (PLEASE PRINT)	ADDRESS	Email	Would you like added to the Mailing List?
Andy Waple, AICP Transportation Program Development Manager	Southwestern Pennsylvania Commission Two Chatham Center, Suite 500 112 Washington Place, Pittsburgh, PA 15219	awaple@spreregion.org	
Dan Alwine Project Development Specialist	Southwestern Pennsylvania Commission Two Chatham Center, Suite 500 112 Washington Place, Pittsburgh, PA 15219	dalwine@spreregion.org	
Max Heckman, P.E., PTOE Director, Transportation and Environmental Planning	Michael Baker International 100 Airside Drive, Airside Business Park Moon Township, PA 15108	mheckman@mbakerintl.com	
Lu Ann May Technical Manager	Michael Baker International 100 Airside Drive, Airside Business Park Moon Township, PA 15108	lmay@mbakerintl.com	
Jessica Belowich, PE, PTOE Project Engineer	Michael Baker International 100 Airside Drive, Airside Business Park Moon Township, PA 15108	jbelowich@mbakerintl.com	
Akshali Gandhi Planning Associate	Michael Baker International 100 Airside Drive, Airside Business Park Moon Township, PA 15108	Akshali.Gandhi@mbakerintl.com	
Marilyn Gelzhiser, RLA, ASLA, AICP, LEED AP	Moore Design Associates 130 Heaven Lane Mars, PA 16046	marilyn@mooredesignassociates.com	



Northern Washington County
Corridor Based Transportation Plan
Public Workshop

Michael Baker
INTERNATIONAL

November 8, 2018

NAME (PLEASE PRINT)	ADDRESS	Email	Would you like added to the Mailing List?
Jeff Leithauer Development Manager	Washington County Planning Commission 100 West Beau Street, Suite 700, Washington, PA 15301	leithauj@co.washington.pa.us	
ERIN SAKALIK	Mount Pleasant Twp	esakalik@mp-twp.com	
JODI NOBLE	Chartiers Twp	jnoble@chartierstwp.com	
Gary Barber	PennDOT	GABARBER@PA.GOV	
Anthony Ascioffa	1929 Ruesla	aascioffa@northshredone twp.com	✓
Shuila Gombitz	50 E Chestnut St Wash PA	shuila@freedom-transit.org	
JEFFREY W LEITHAUER	Planning		
Joe Thomas	50 East Chestnut St. Washington, PA	jthomas@freedom-transit.org	
Senator CAMERA BARTOLLOTTA	135 Technology Dr. Canonsburg	CameraBartolotta@ Pasen.gov	✓

PUBLIC WORKSHOP PRESENTATION





Northern Washington County Corridor Based Transportation Plan

PUBLIC MEETING

November 8, 2018

Tonight's Agenda

- **Project Overview**
- **Stakeholder and Public Input**
- **Existing and Future Conditions**
- **Safety, Operational and Mobility Needs**
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- **Next Steps**
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Project Overview

Study Purpose

Study Intersections and Corridors

Goals and Objectives

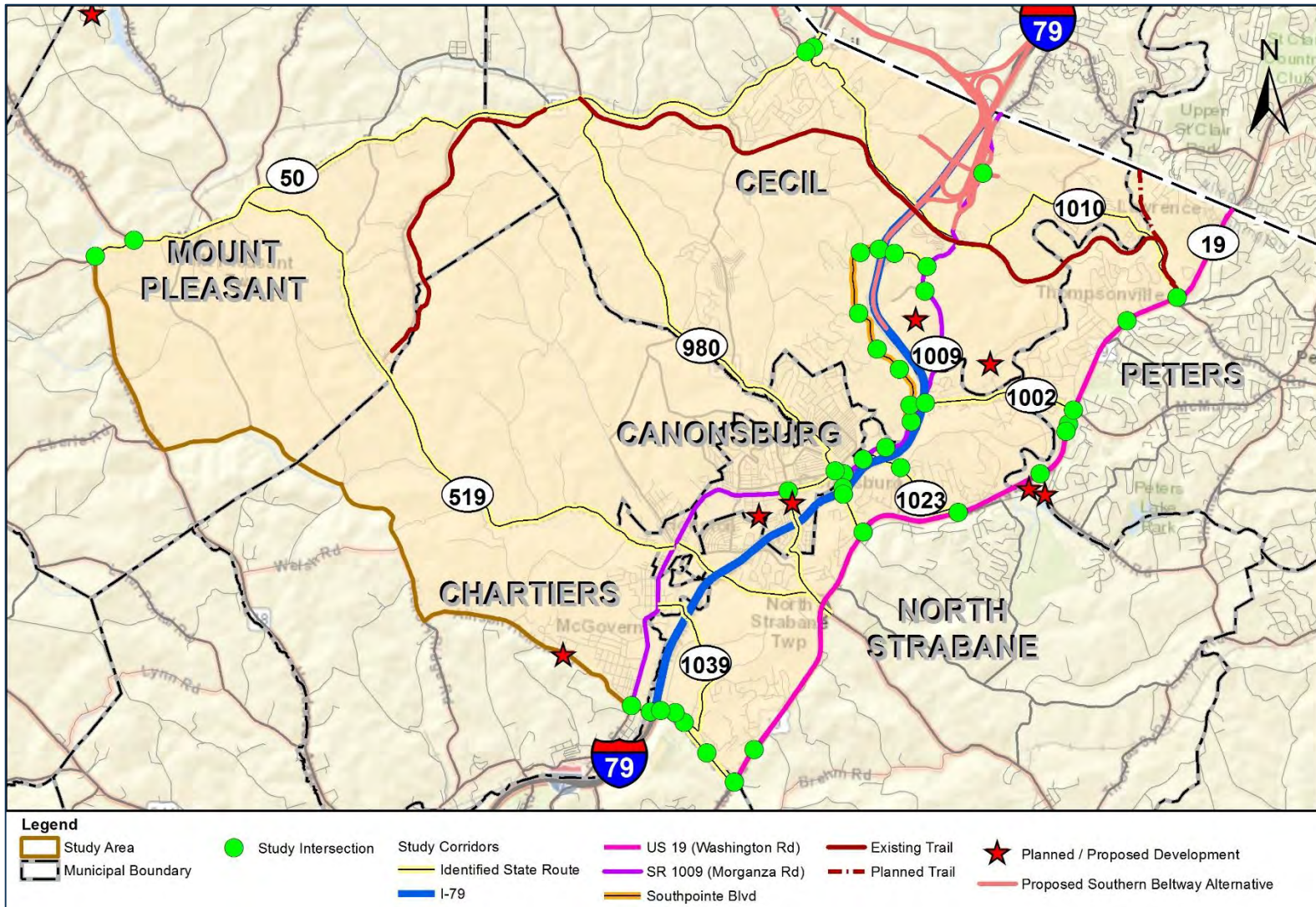
Study Process

Project Overview

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Evaluate the study corridors and intersections within the Study Area to identify short-term and long-term improvements that satisfy the goals and objectives of the Study.

Project Overview



Project Overview

GOALS AND OBJECTIVES

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Stakeholder and Public Input

Stakeholder and Public Input

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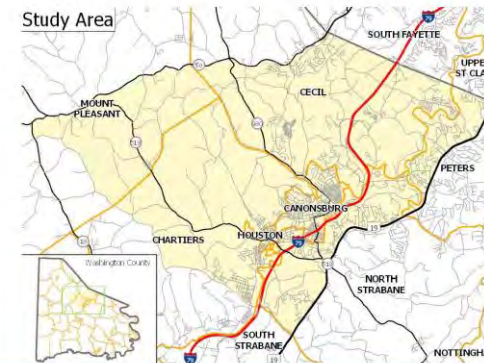
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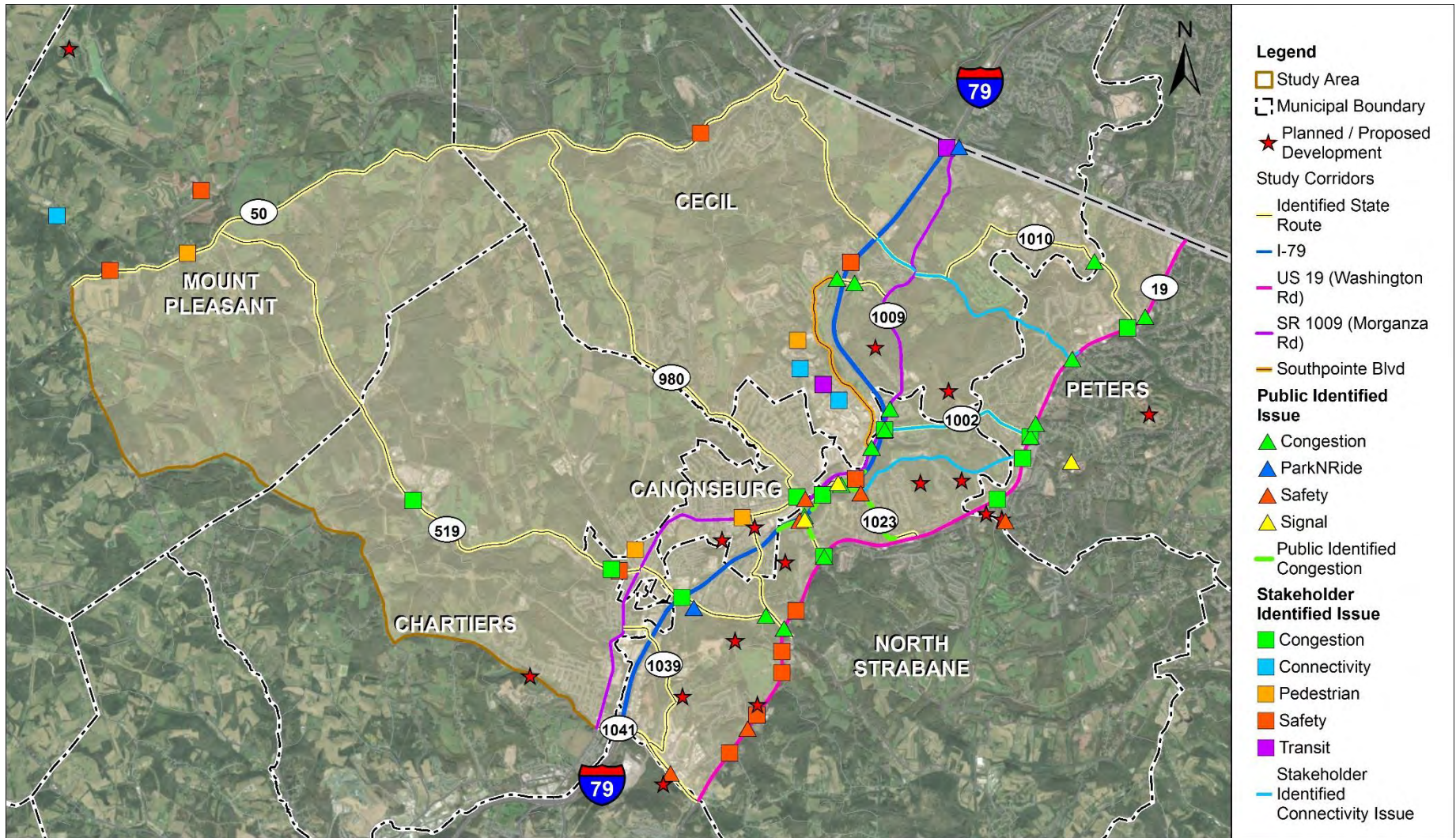
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Existing and Future Conditions

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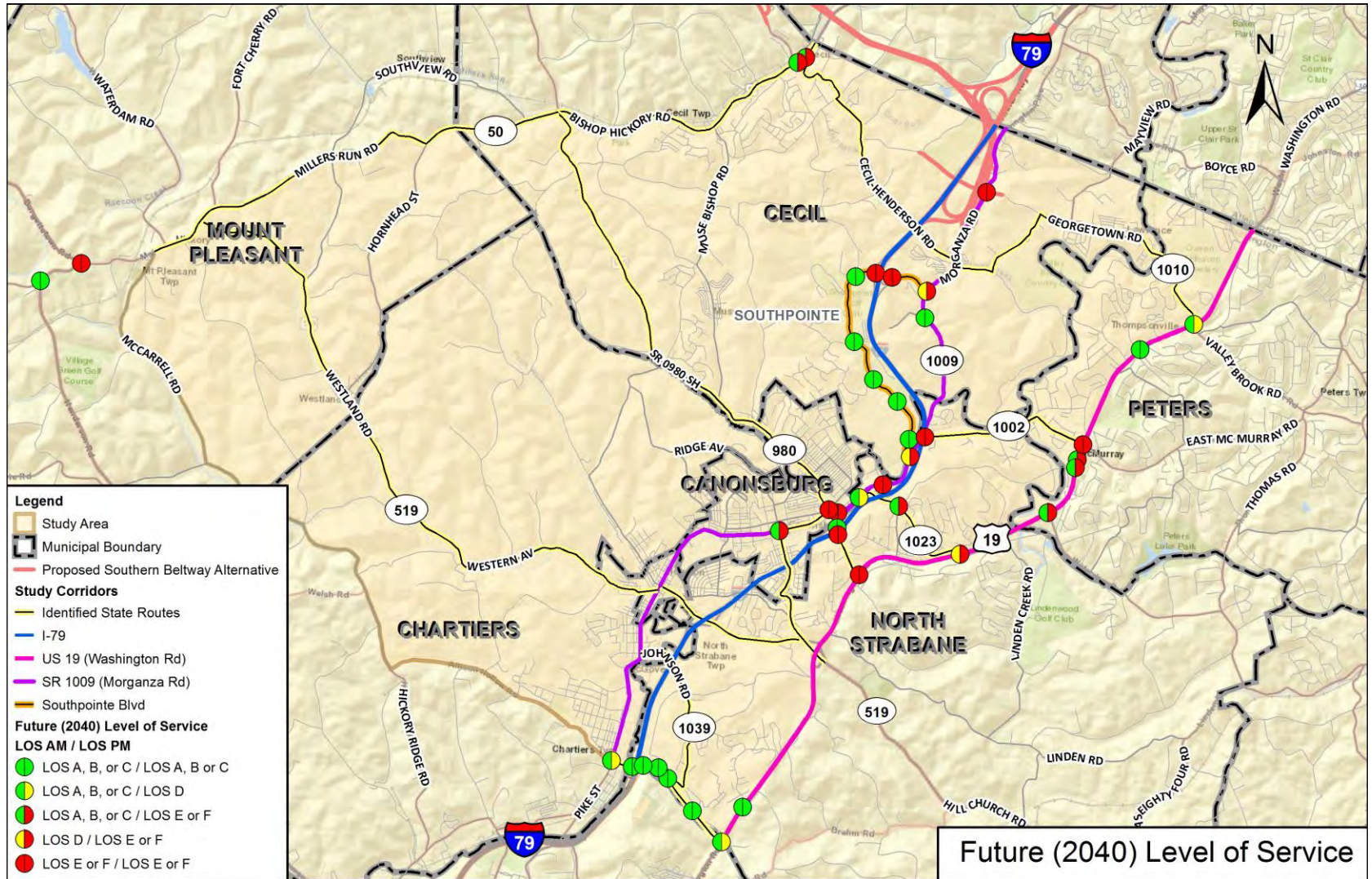
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An aerial photograph of a highway interchange with multiple overpasses and ramps, surrounded by a residential neighborhood with a grid-like street pattern and some green spaces. The image is in grayscale and serves as a background for the text.

Safety, Operational and Mobility Improvements Evaluated

Safety Improvements

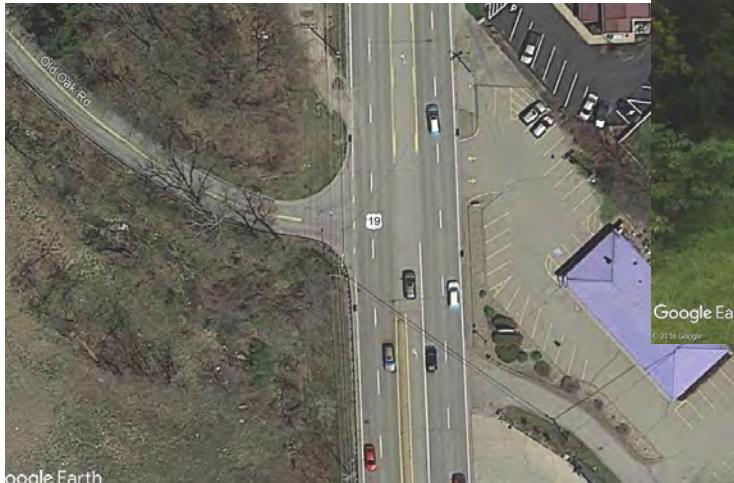
Operational Improvements

Mobility Improvements

Safety Improvements

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Mobility Improvements

TRANSIT IMPROVEMENTS EVALUATED:

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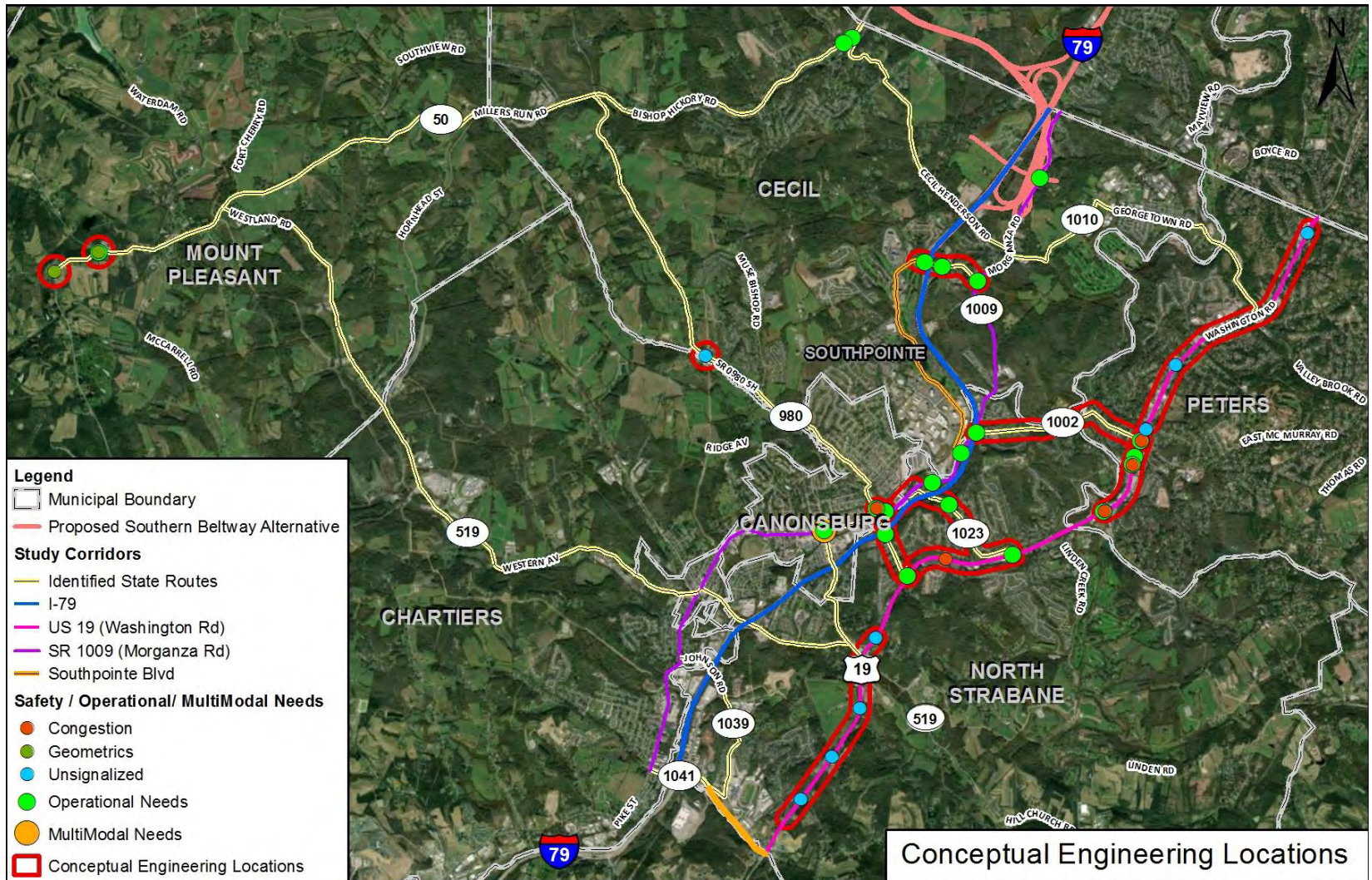
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Conceptual Engineering

- **Conceptual Engineering Improvements**
- **Multimodal Improvements**
- **Implementation**

Conceptual Engineering Locations

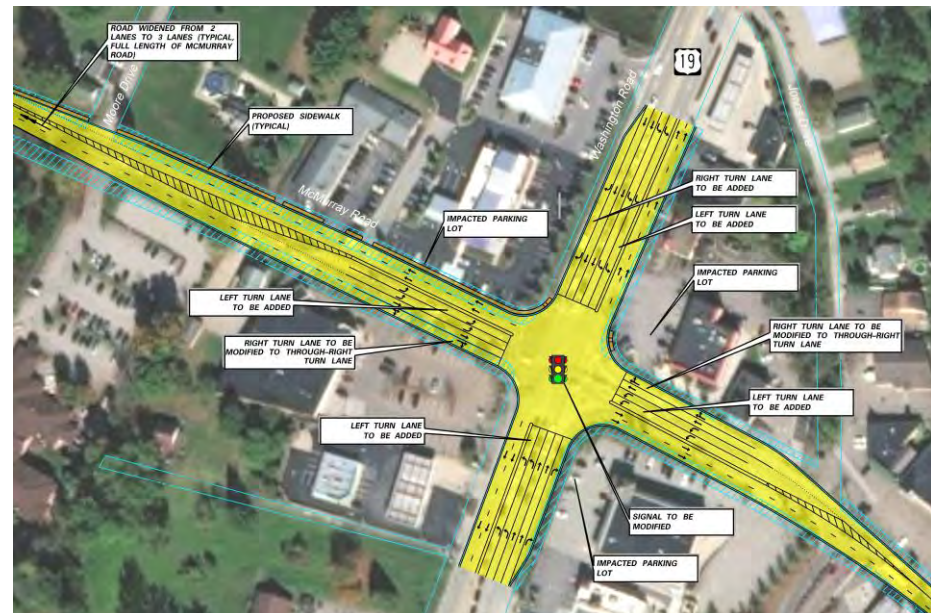


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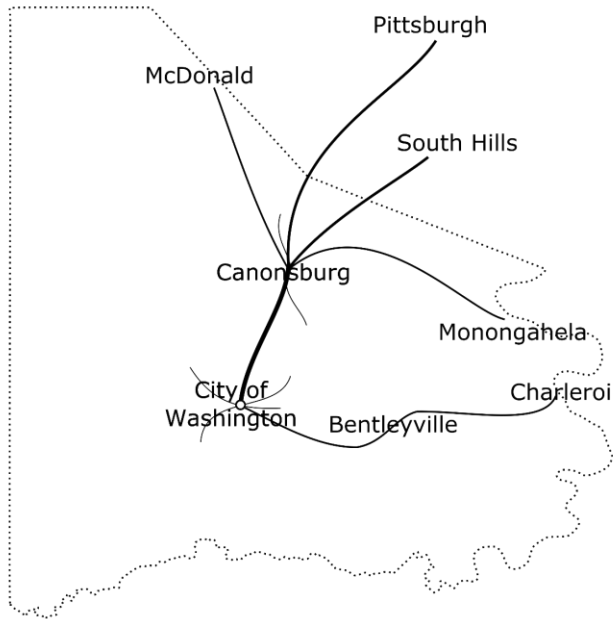
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Multimodal Improvements (continued)



MEDIUM-TERM

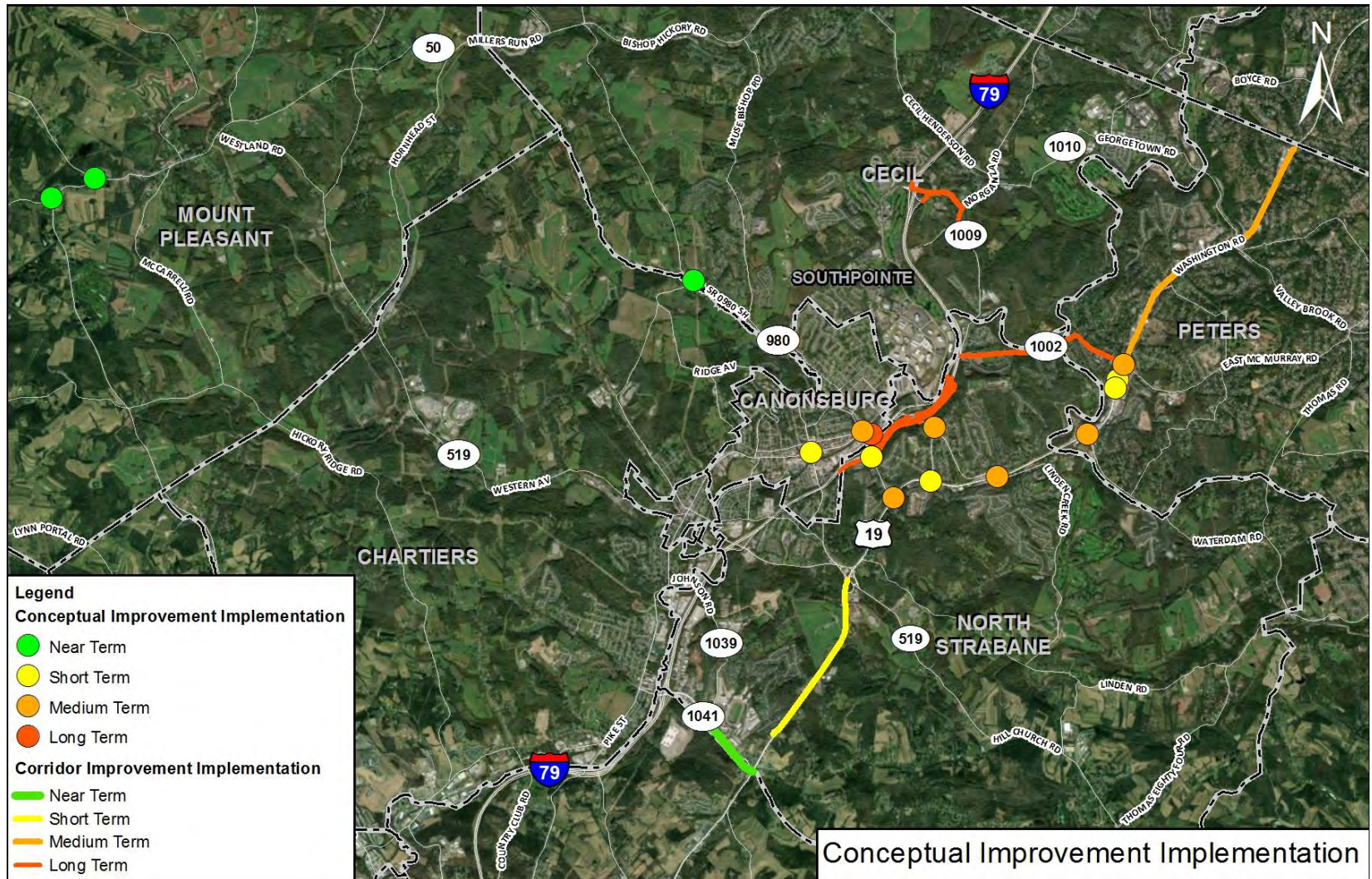
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PUBLIC WORKSHOP EXHIBITS

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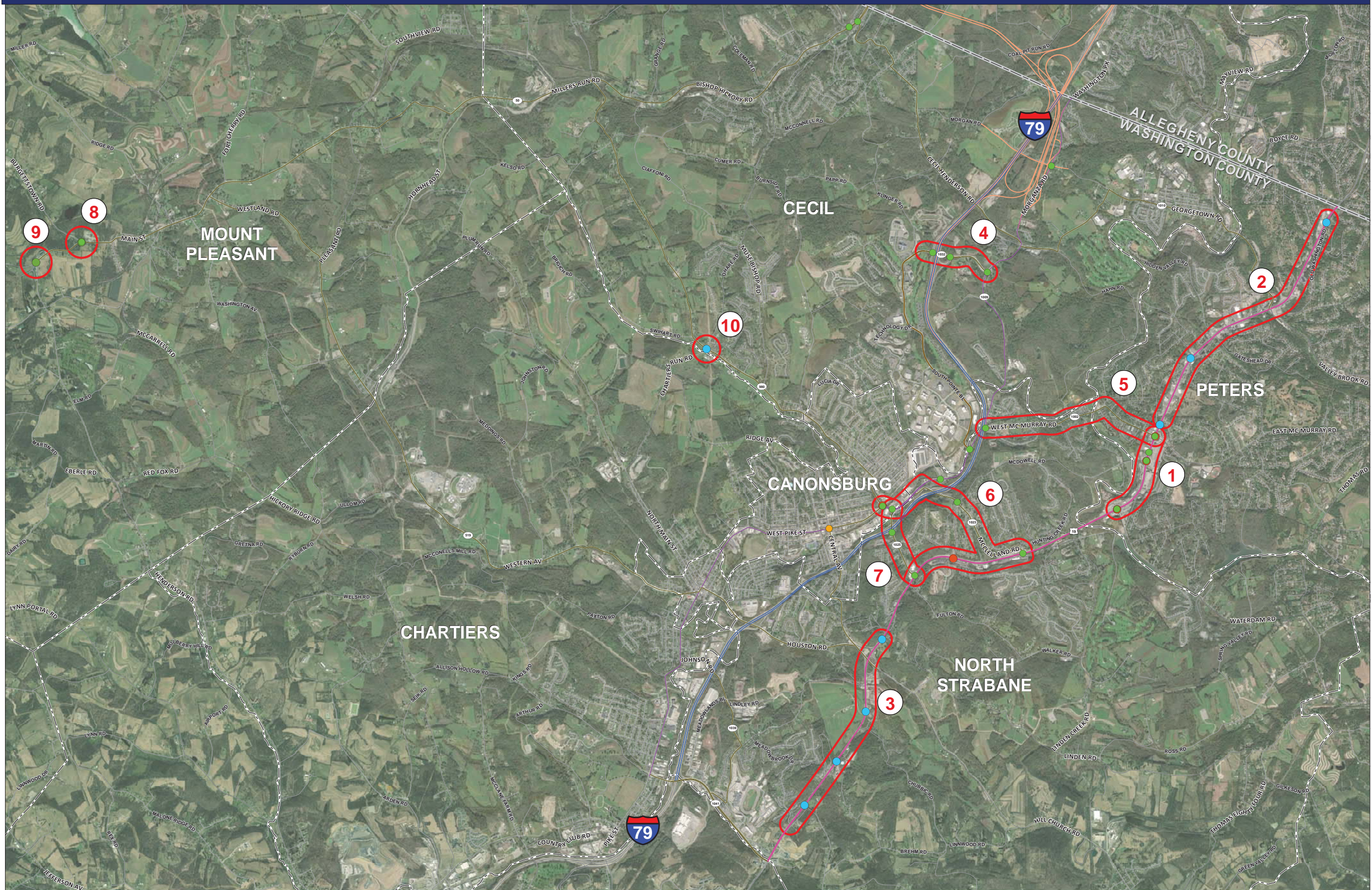
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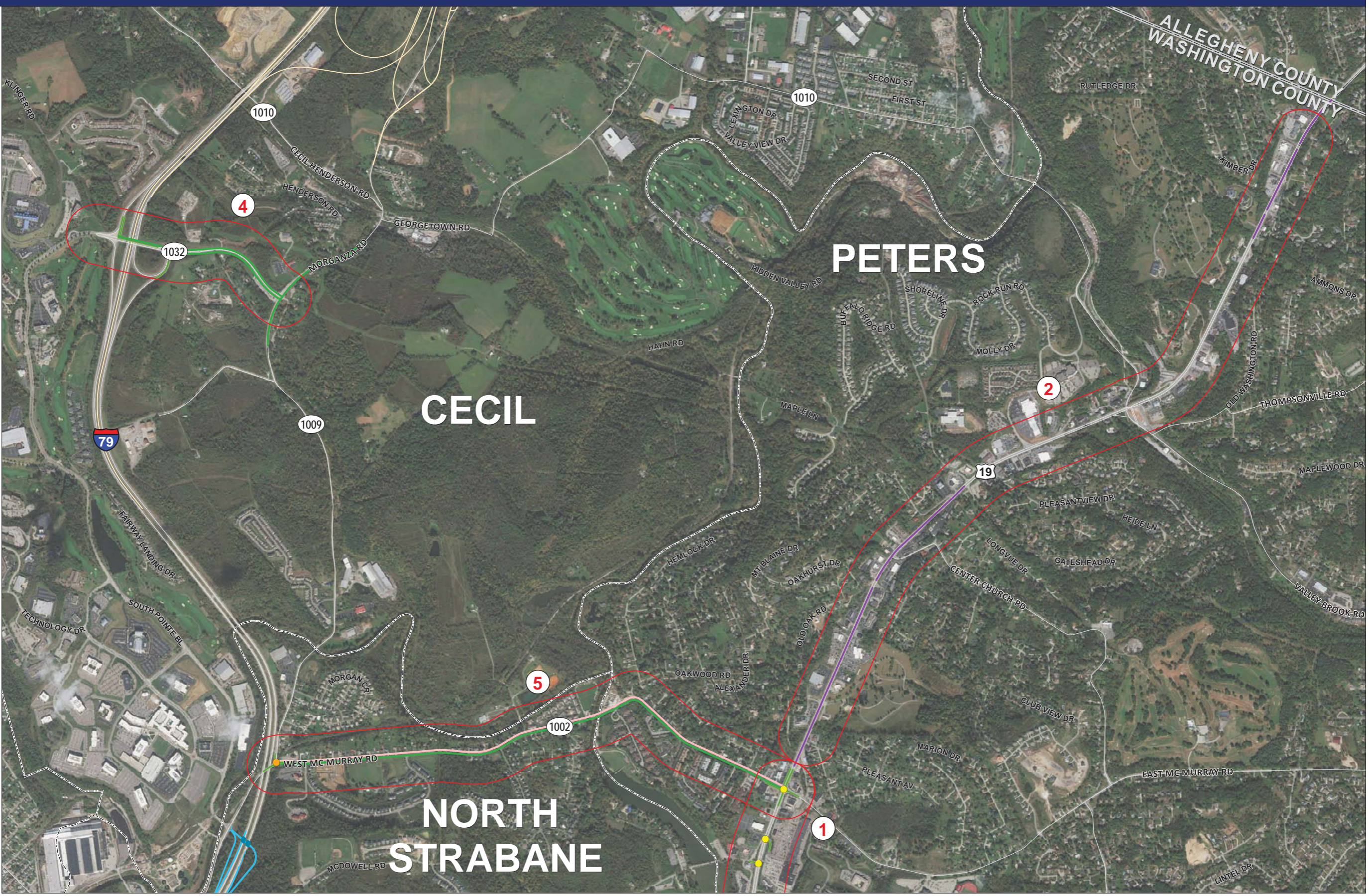
CONCEPTUAL IMPROVEMENT LOCATIONS



Legend	
Study Corridors	<ul style="list-style-type: none"> US 19 (Washington Rd) Identified State Routes I-79 Southpointe Blvd
Conceptual Engineering Locations	<ul style="list-style-type: none"> SR 1009 (Morganza Rd) Conceptual Location Number
Safety / Operational Needs	<ul style="list-style-type: none"> Geometrics Operational Needs Congestion Unsignalized Multimodal Needs
	<ul style="list-style-type: none"> Proposed Southern Beltway Alternative Municipal Boundary

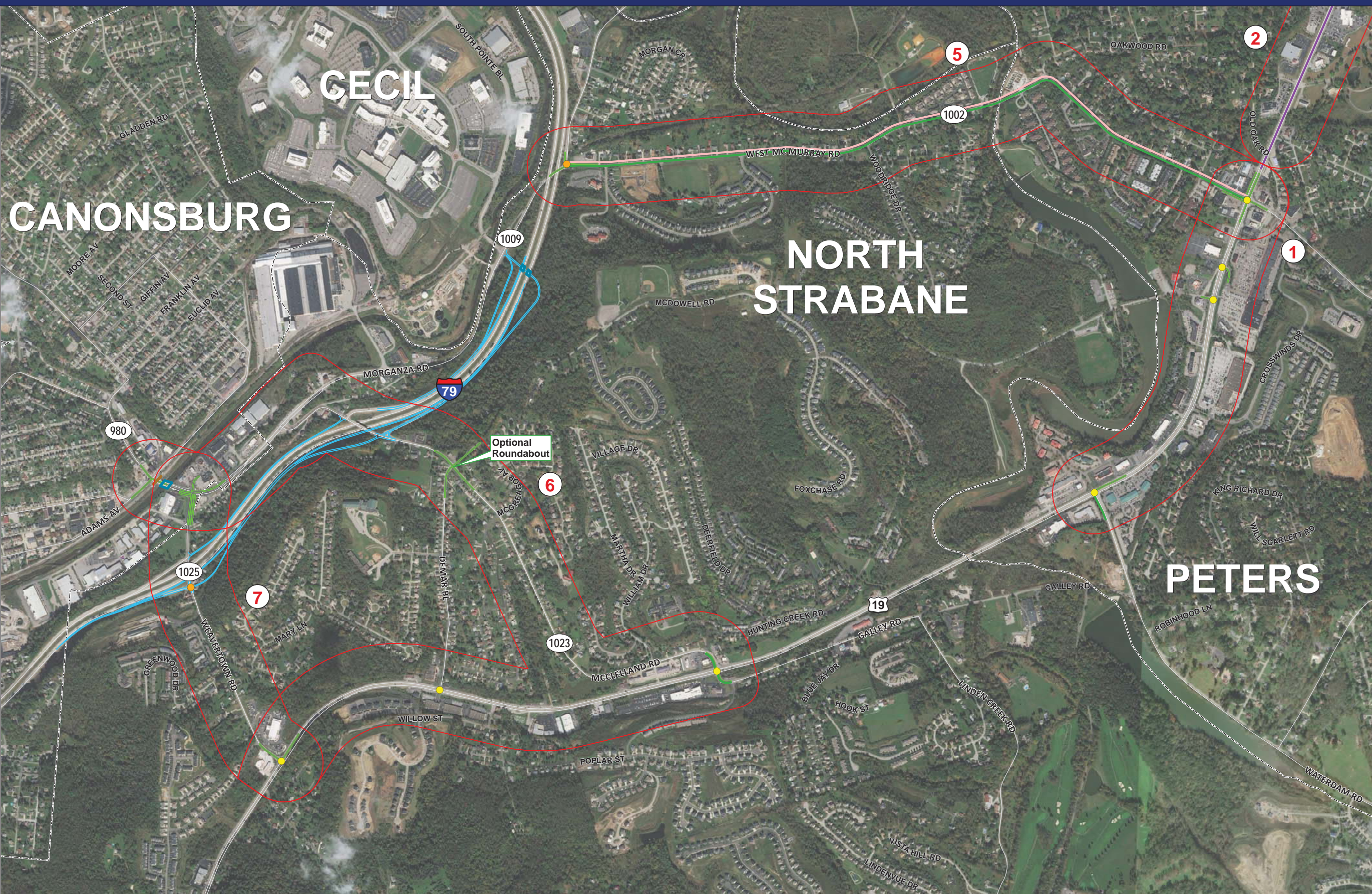


CONCEPTUAL IMPROVEMENTS (Locations 1, 2, 4 & 5)



Legend		Conceptual Improvements		Proposed Southern Beltway Alternative			Northern Washington County CORRIDOR BASED TRANSPORTATION PLAN
	Bridge Replacement/Proposed Bridge		Sidewalk		Proposed Traffic Signal		
	Additional Lane		Install Raised Median		Signal Improvement		Conceptual Location #
	Add Turn Lane		Connector Road				

CONCEPTUAL IMPROVEMENTS (Locations 1, 2, & 5-7)



Legend			
	Bridge Replacement/Proposed Bridge		Proposed Traffic Signal
	Additional Lane		Signal Improvement
	Add Turn Lane		Conceptual Engineering Locations
	Install Raised Median		Conceptual Location #
	Improve RR Grade Crossing		
	Sidewalk		
	Connector Road		



CONCEPTUAL IMPROVEMENTS (Locations 3 & 8-10)

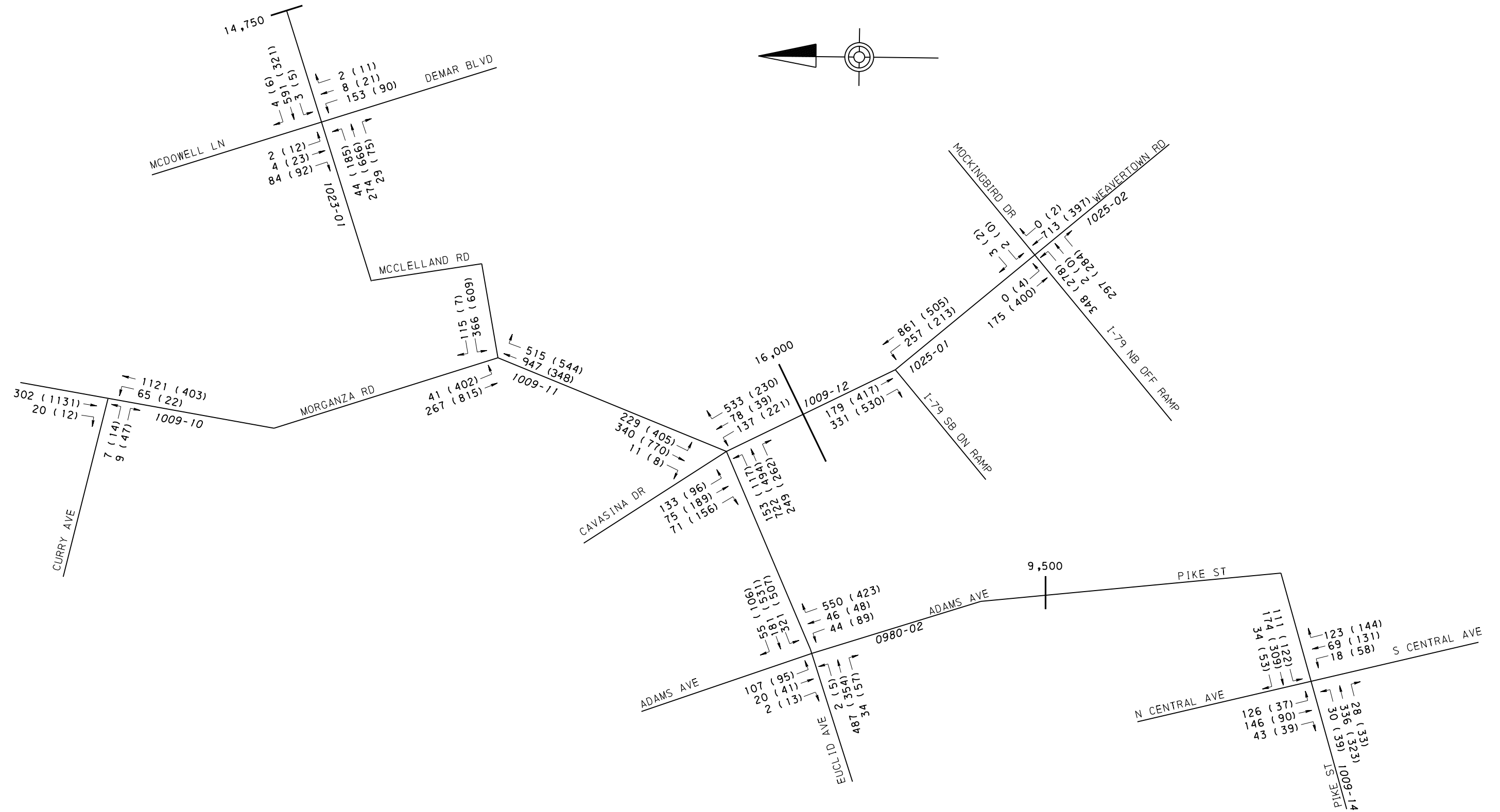
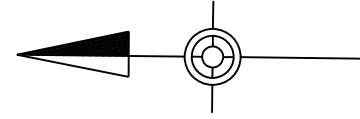


- Legend**
- | | | |
|--------------------------|-------------------|----------------------------------|
| Continuous Raised Median | All-Way Stop | Conceptual Engineering Locations |
| Grading | Replace Stop Sign | Conceptual Location # |
| Proposed Jug Handle | Add Park-n-Ride | |
| Sidewalk | | |
| Widen Shoulder | | |



APPENDIX D

Traffic Volume Diagrams



TURNING MOVEMENT COUNT LEGEND

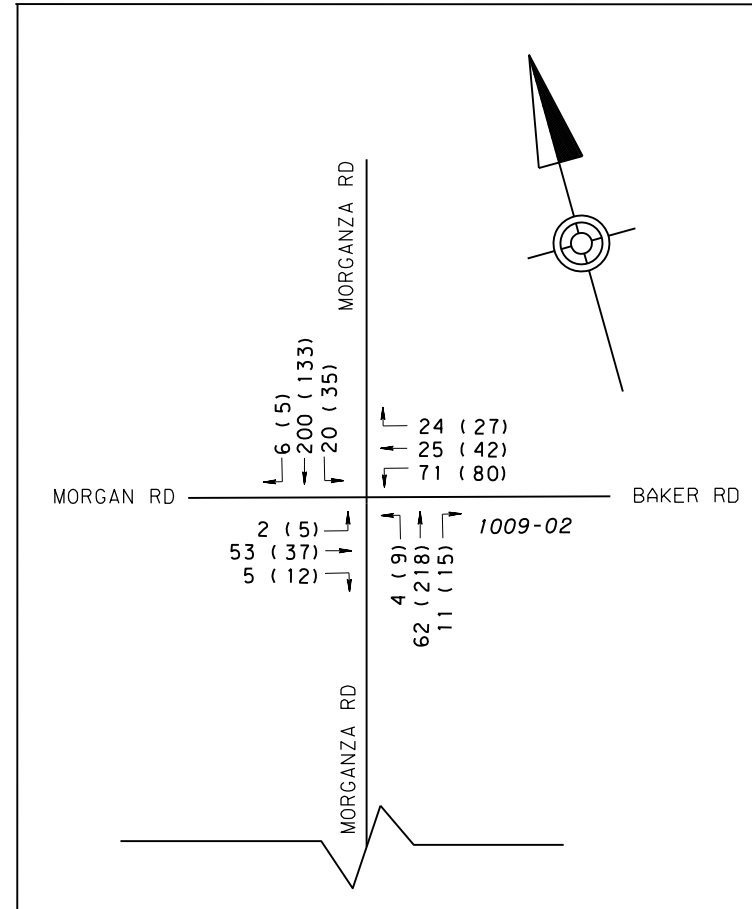
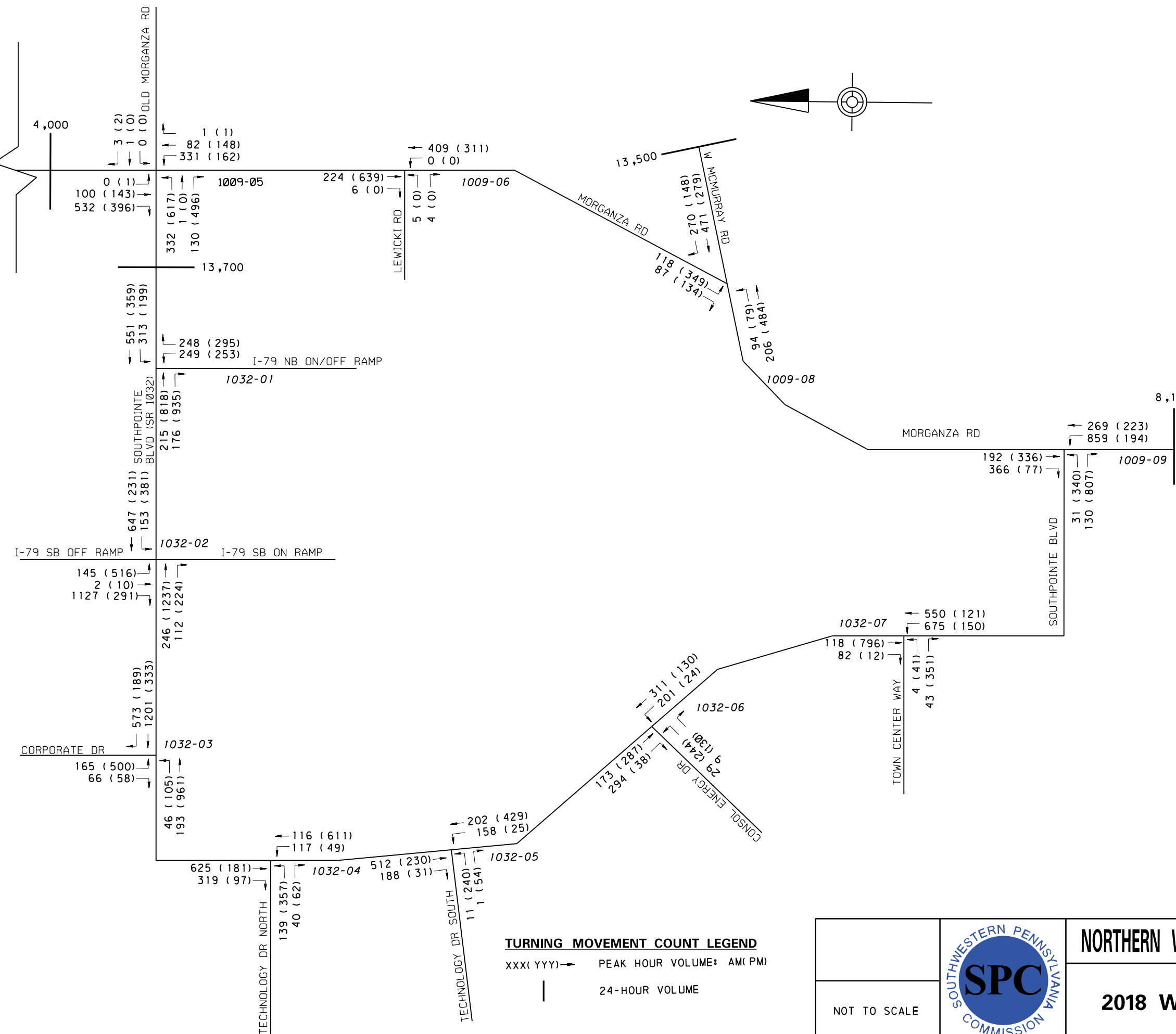
XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)
 | 24-HOUR VOLUME

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN

2018 Weekday Peak Hour Volumes

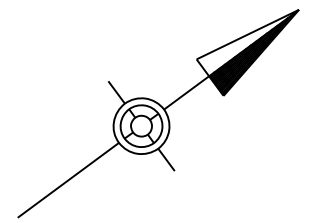
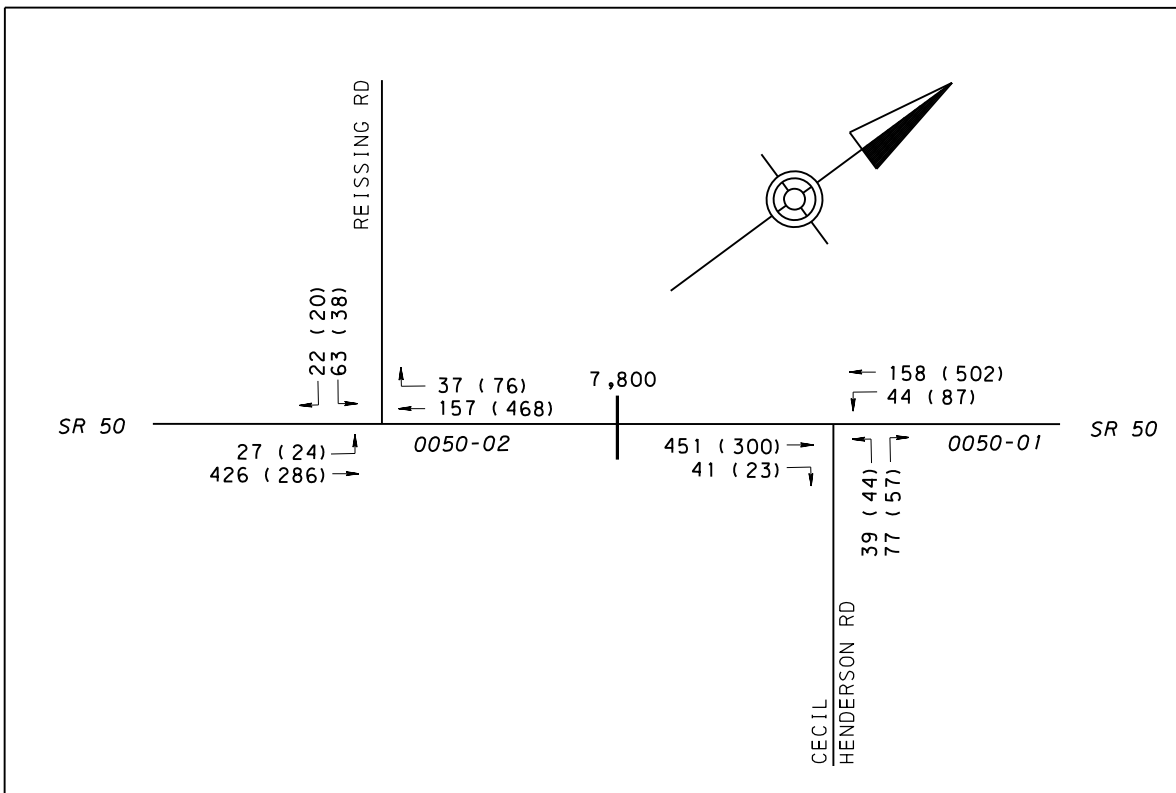
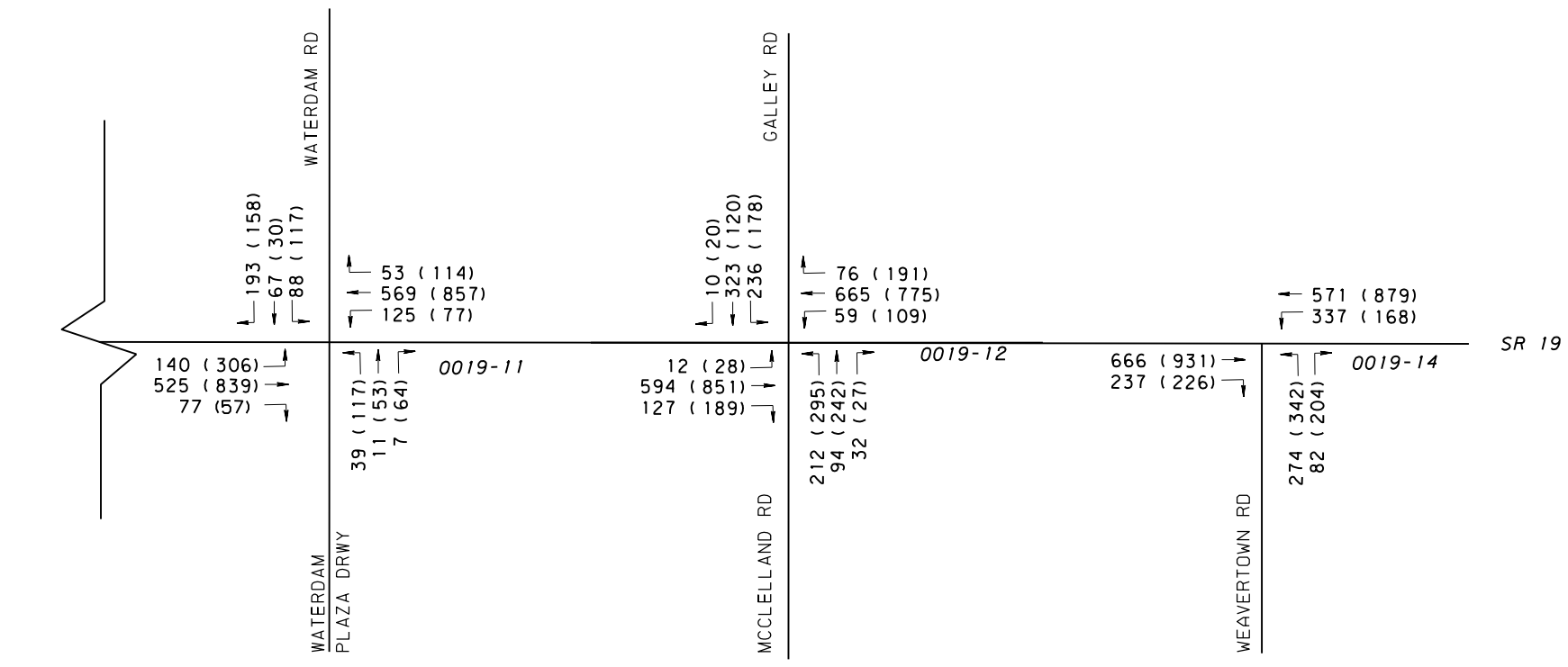
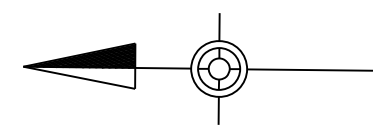
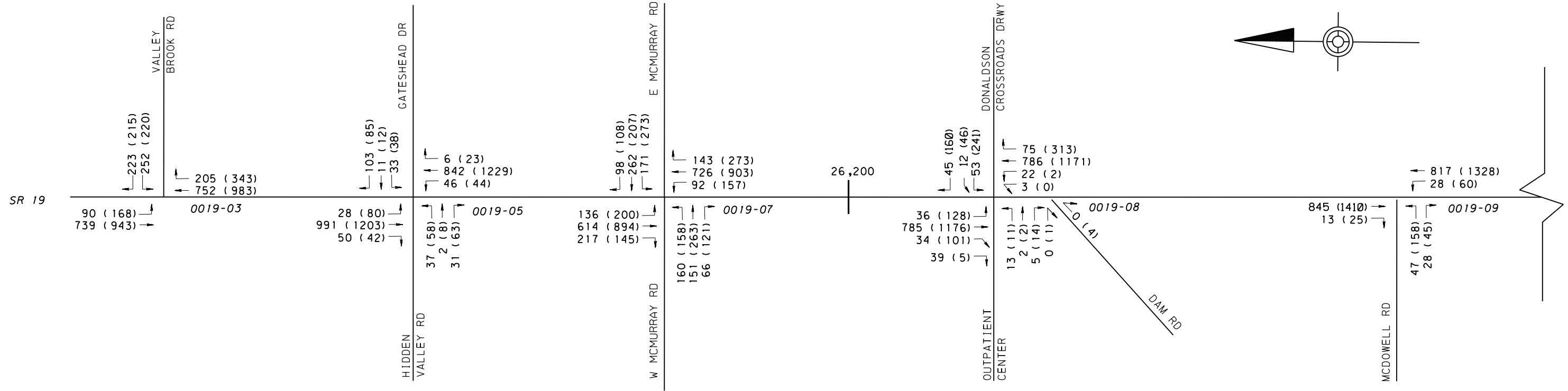


TURNING MOVEMENT COUNT LEGEND
 XXX(YYY) → PEAK HOUR VOLUME: AM(PM)
 | 24-HOUR VOLUME

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN
2018 Weekday Peak Hour Volumes



TURNING MOVEMENT COUNT LEGEND

XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)

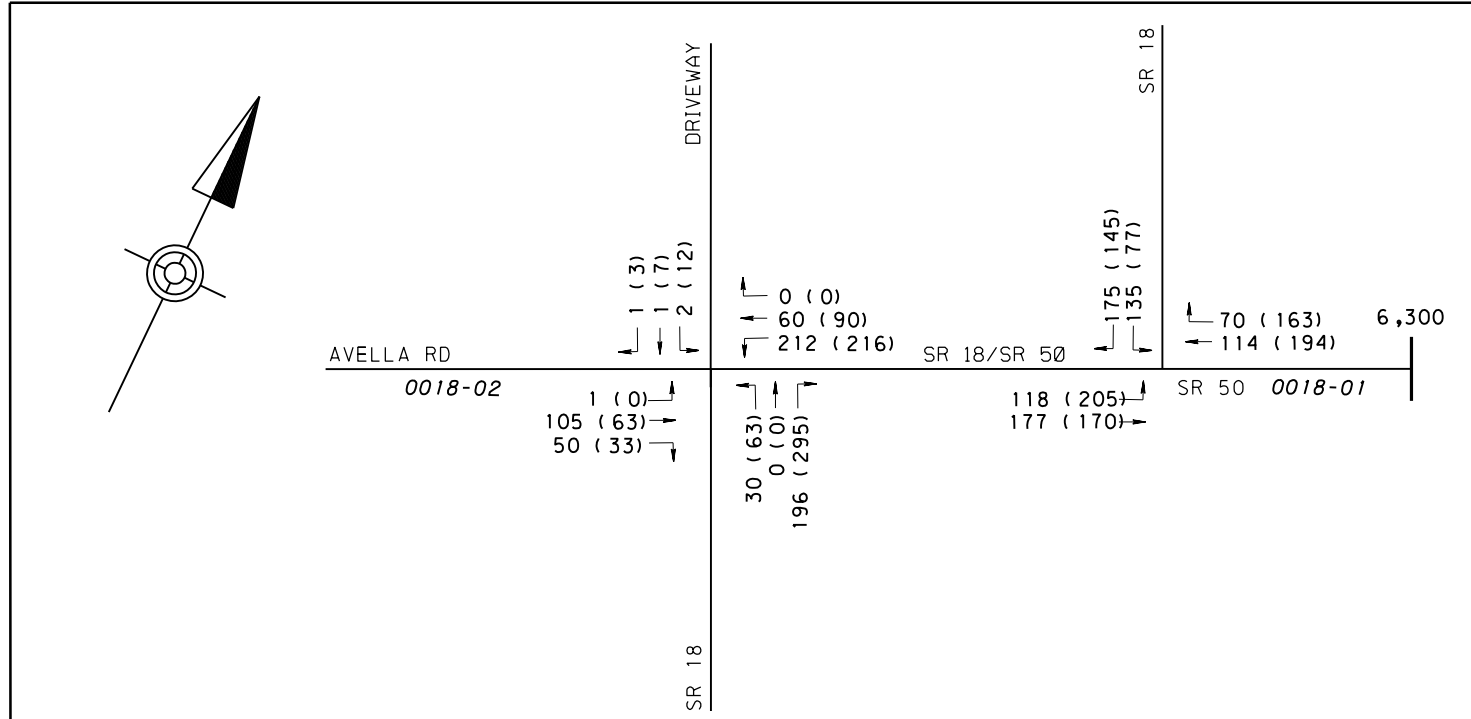
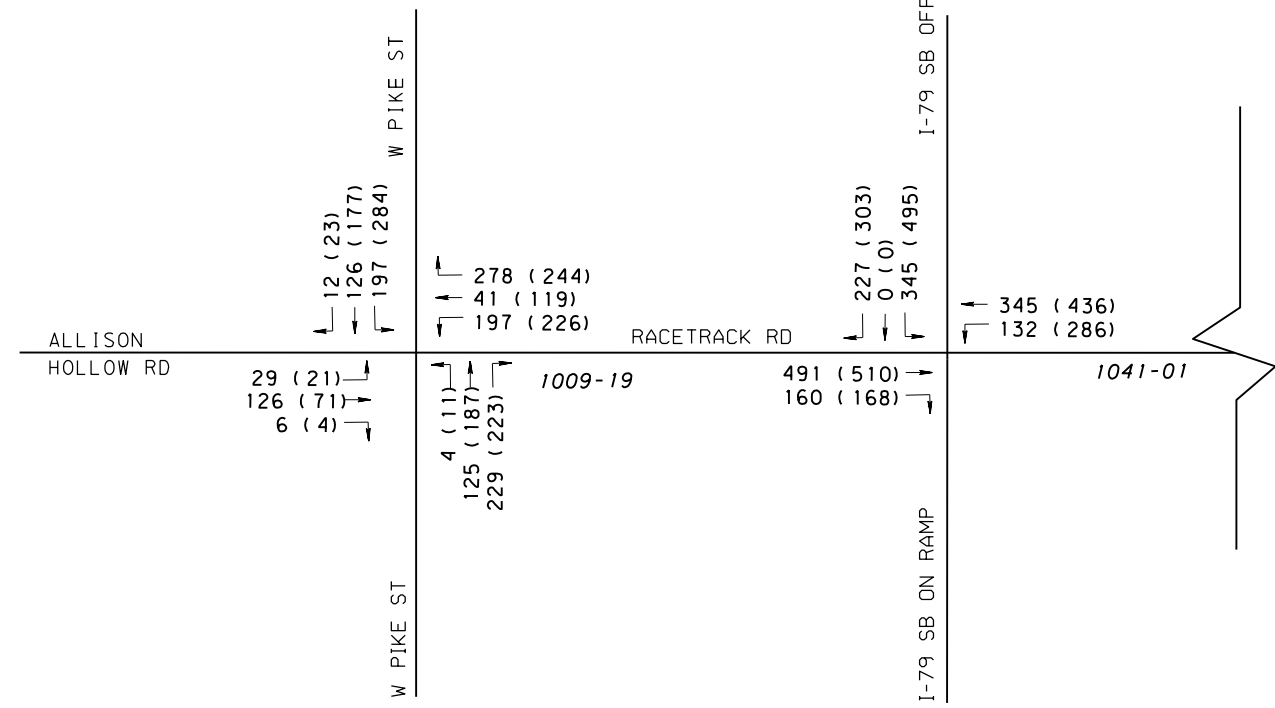
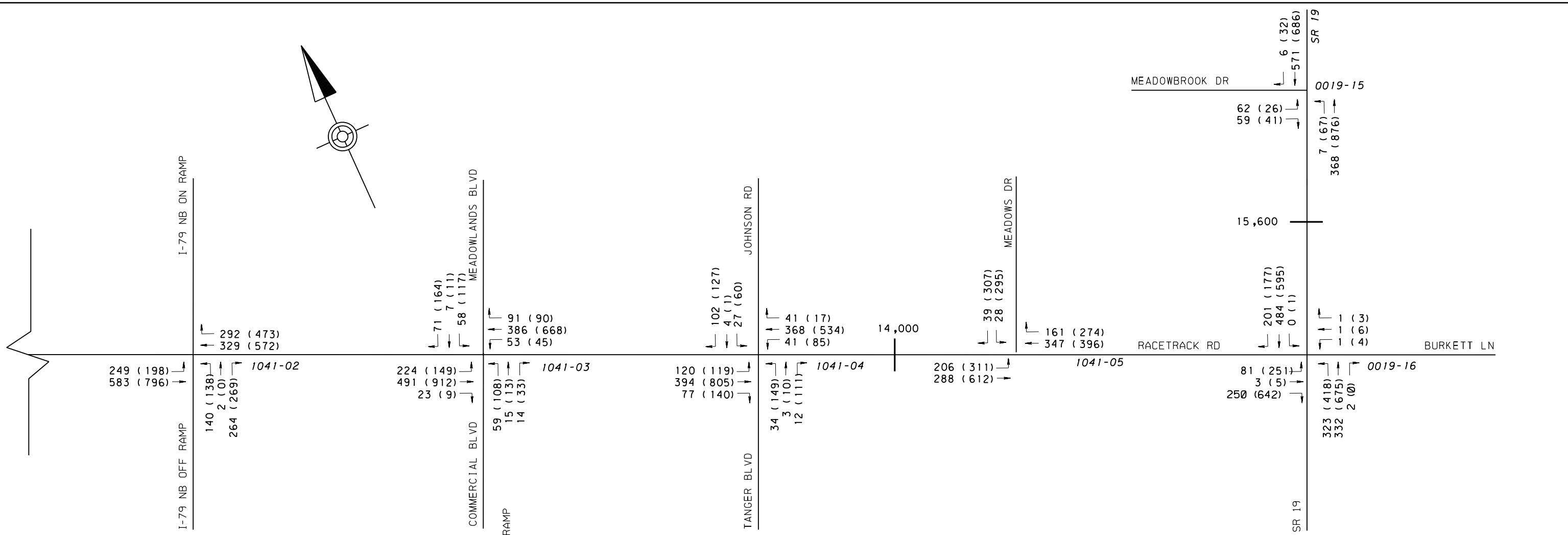
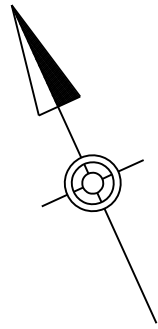
| 24 HOUR VOLUME

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN

2018 Weekday Peak Hour Volumes



TURNING MOVEMENT COUNT LEGEND

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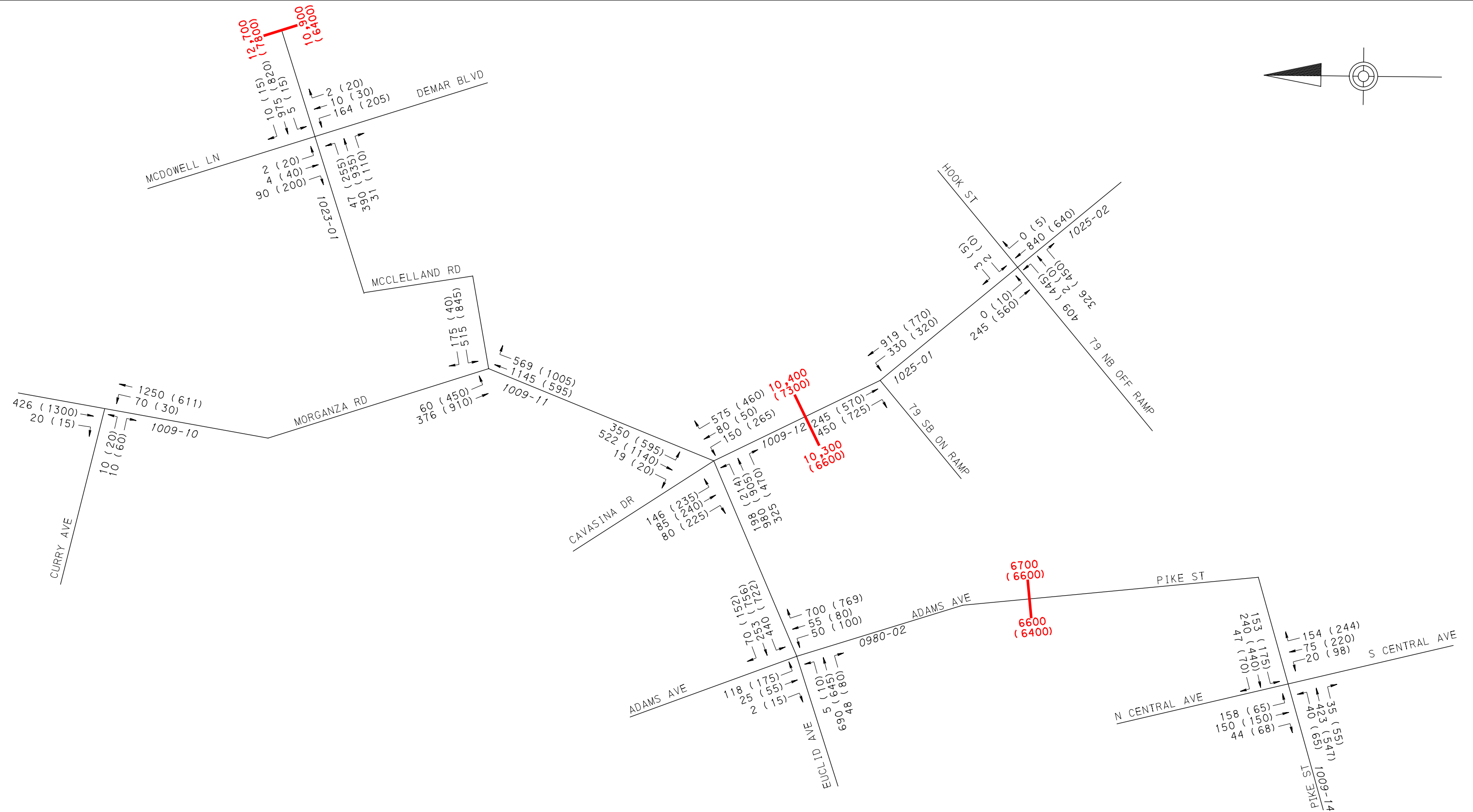
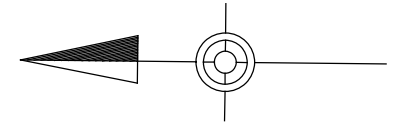
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NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN

2018 Weekday Peak Hour Volumes



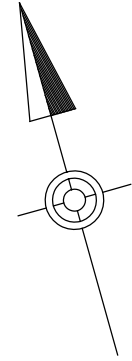
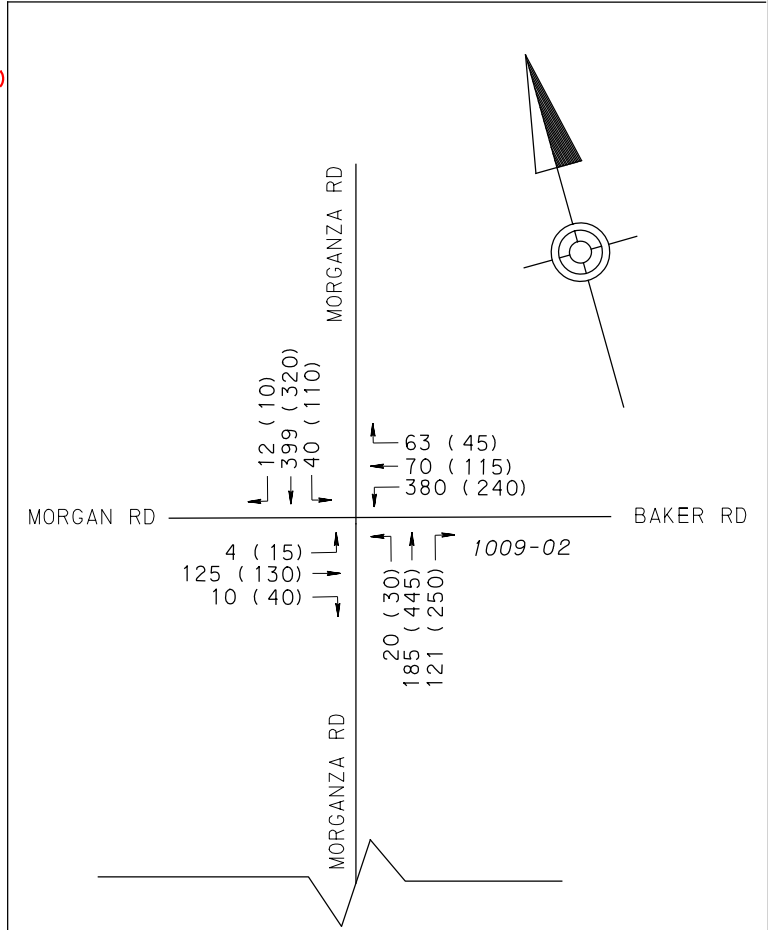
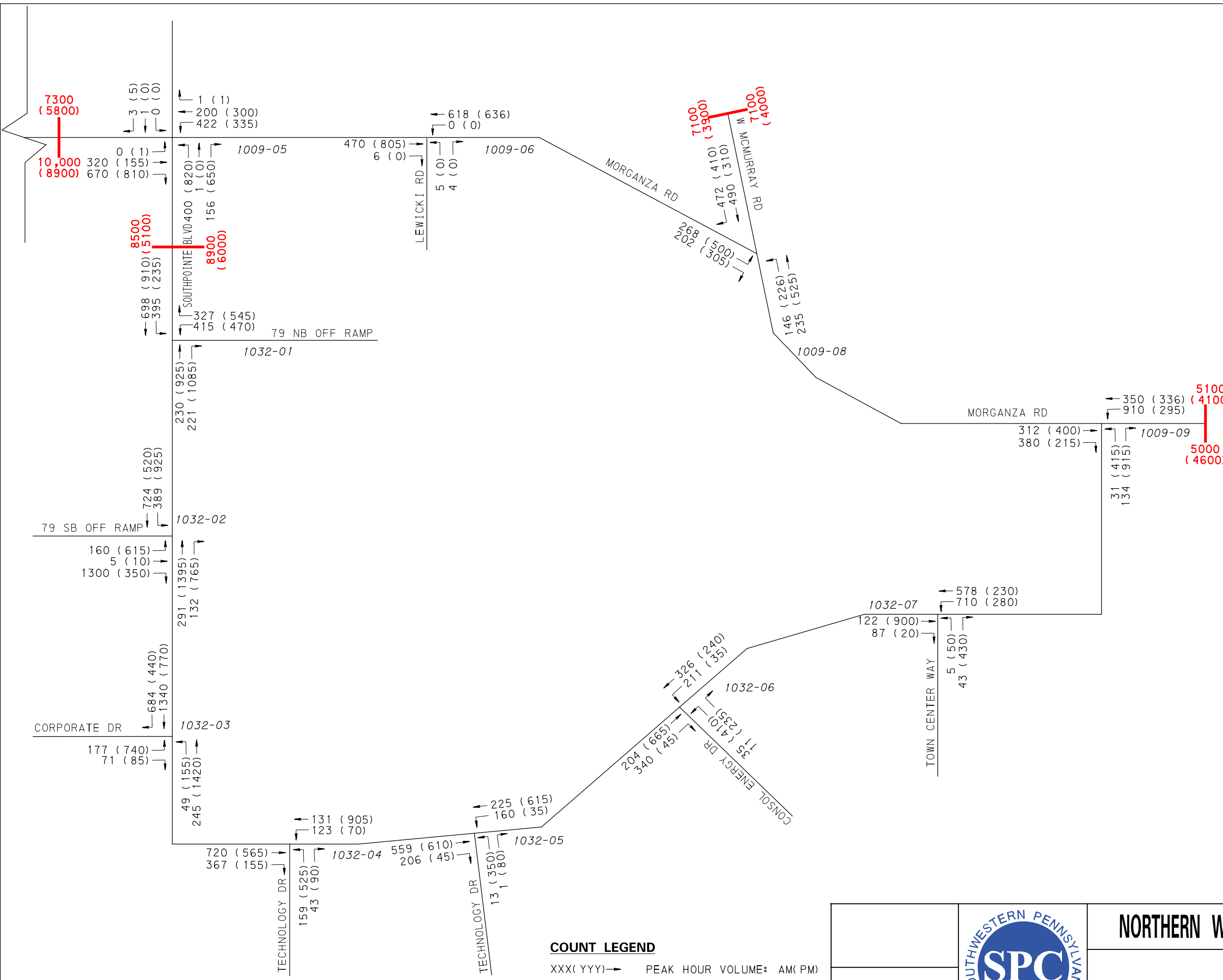
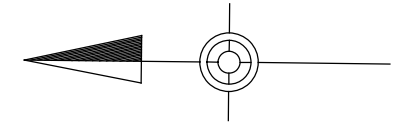
COUNT LEGEND

XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)
 24 HOUR VOLUME:
 WITHOUT SB 79 TO MFE
 (WITH SB 79 TO MFE)

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN
2040
Traffic Volumes

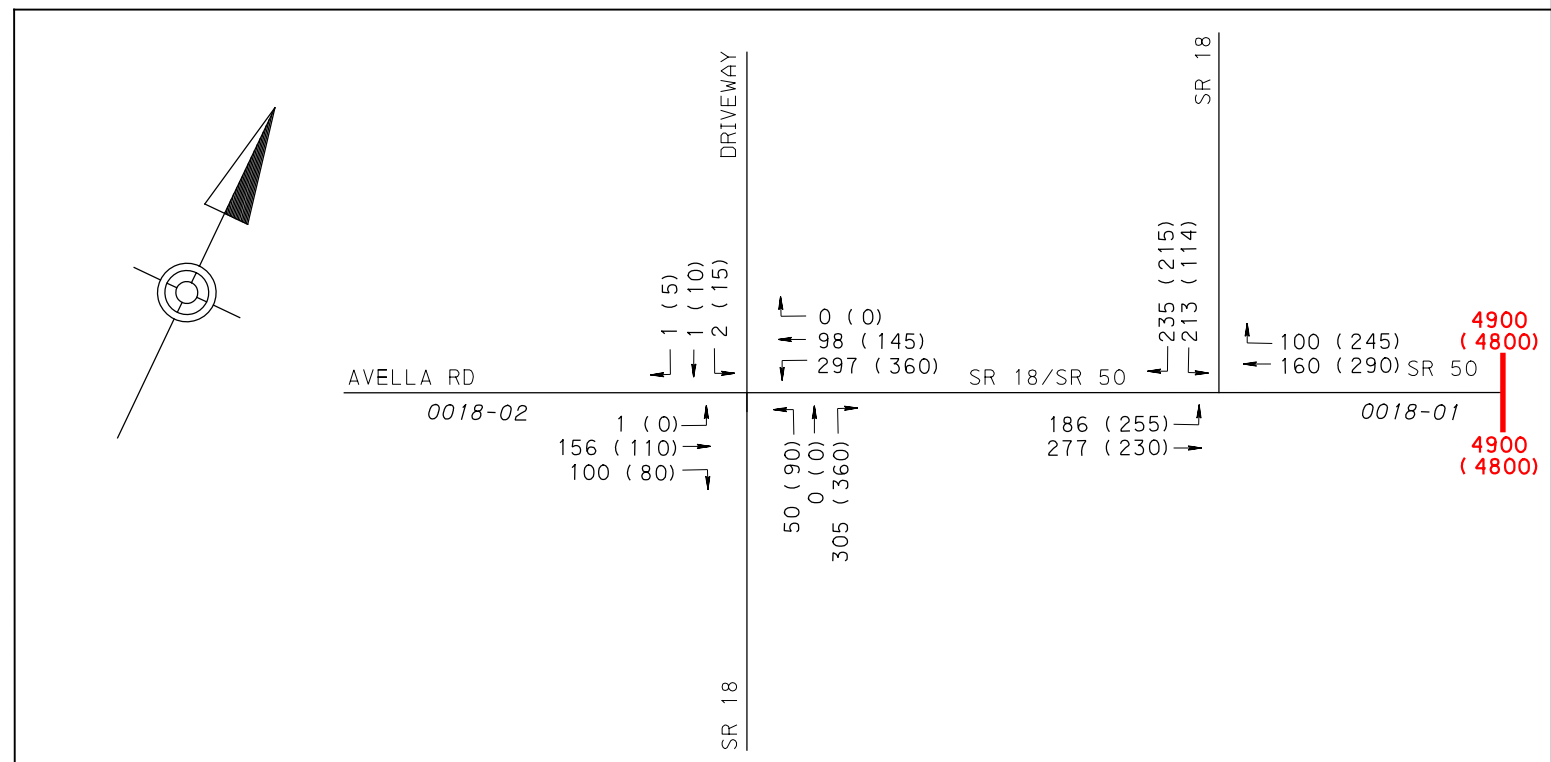
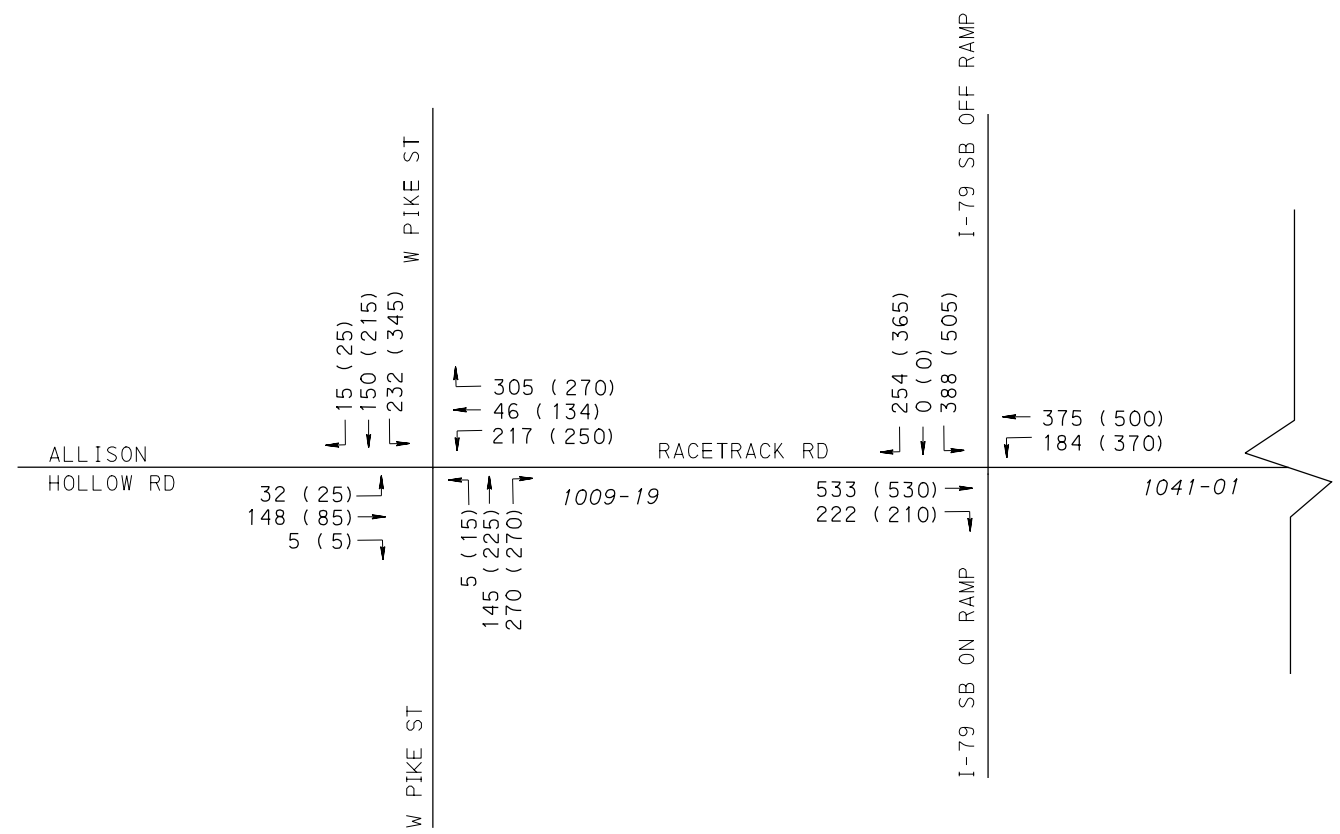
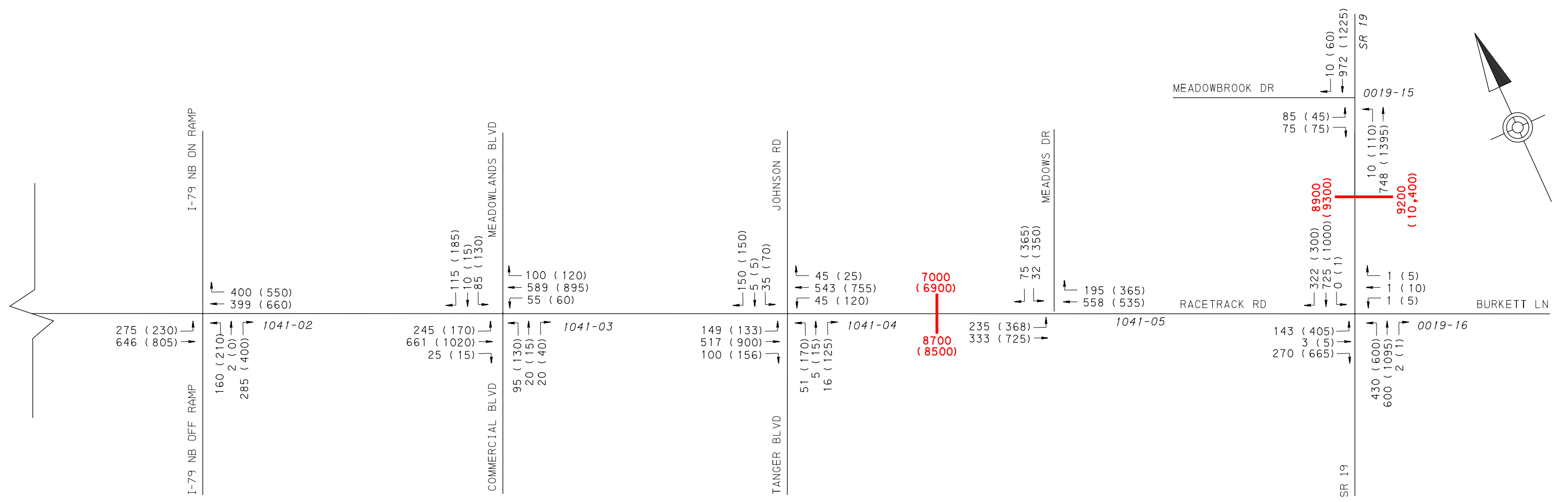


COUNT LEGEND
 XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)
 ┆ 24 HOUR VOLUME:
 ┆ WITHOUT SB 79 TO MFE
 ┆ (WITH SB 79 TO MFE)

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN
2040
Traffic Volumes



COUNT LEGEND

XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)

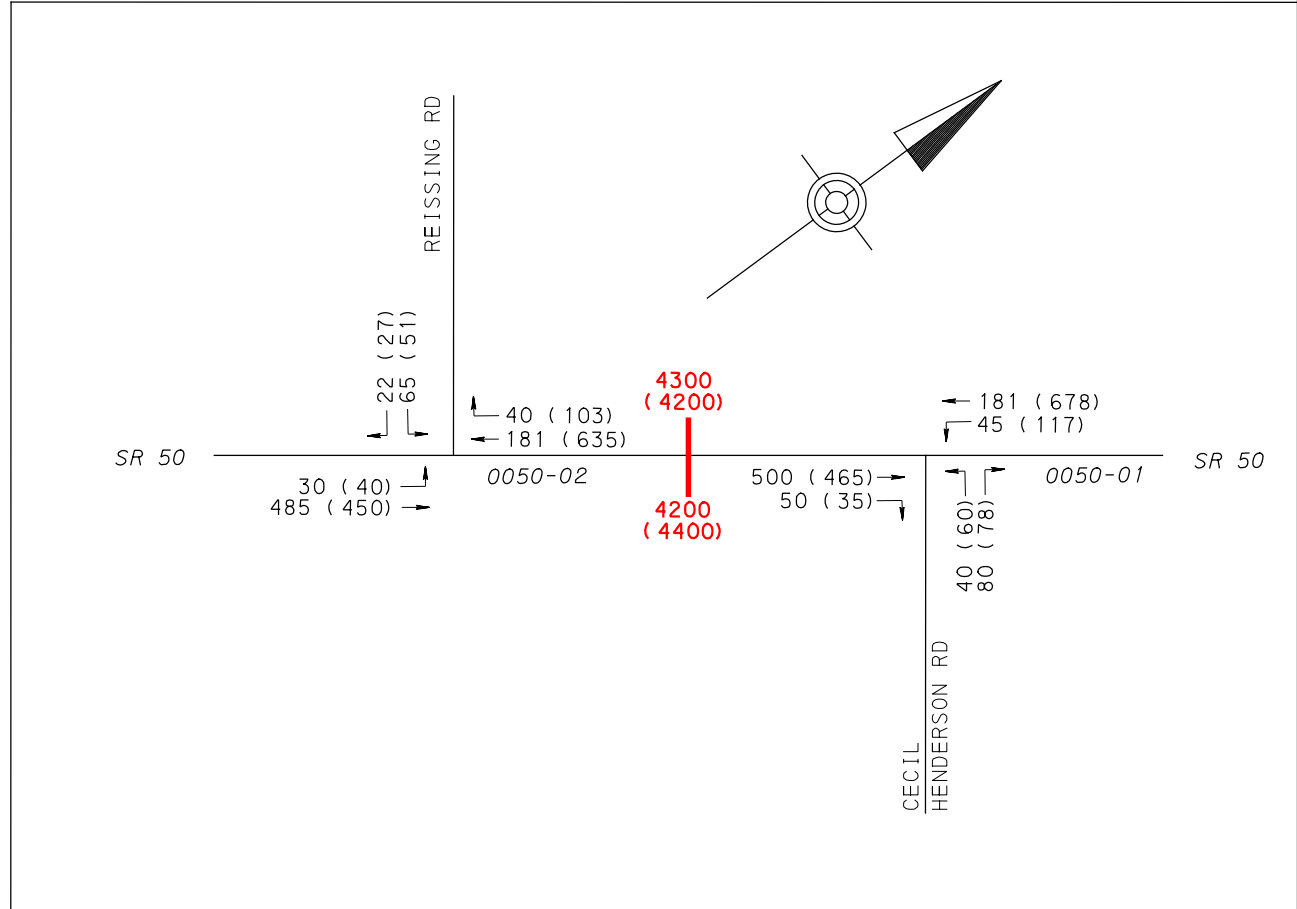
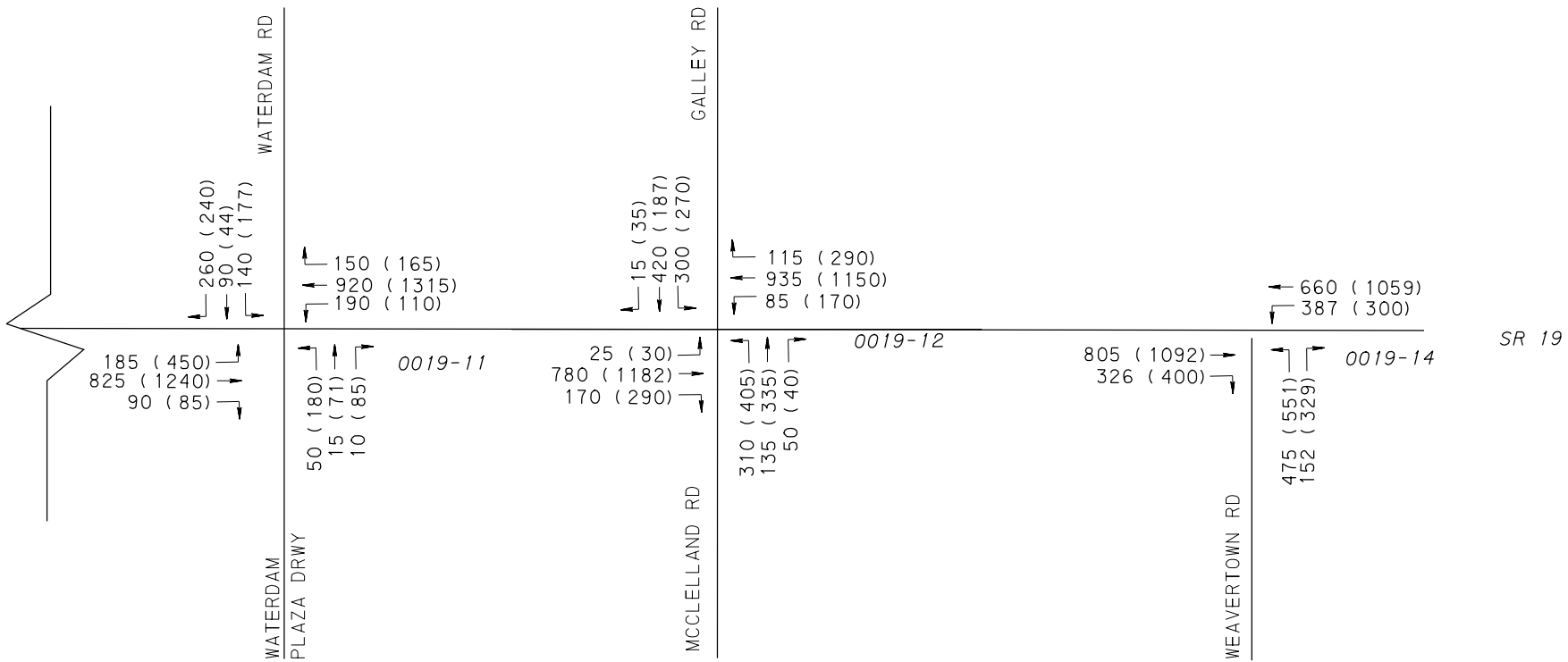
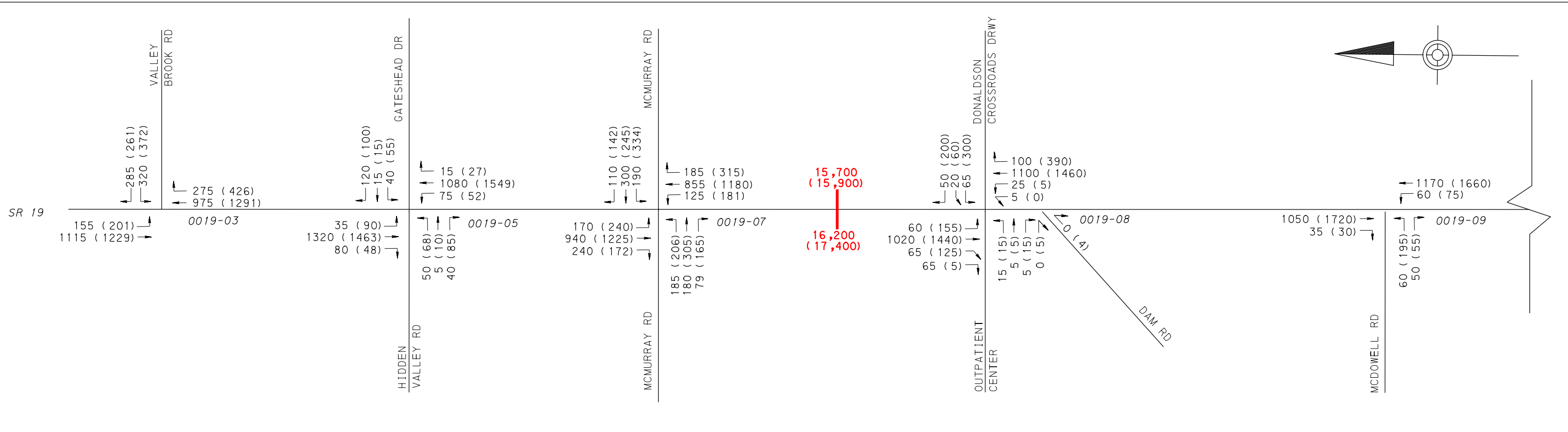
— 24 HOUR VOLUME:
WITHOUT SB 79 TO MFE
(WITH SB 79 TO MFE)

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN

2040 Traffic Volumes



COUNT LEGEND

XXX(YYY)→ PEAK HOUR VOLUME: AM(PM)
 24 HOUR VOLUME:
 WITHOUT SB 79 TO MFE
 (WITH SB 79 TO MFE)

NOT TO SCALE



NORTHERN WASHINGTON COUNTY TRANSPORTATION PLAN

**2040
Traffic Volumes**

APPENDIX E

Level of Service Tables

Northern Washington SPC: 2018 Existing LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
0980-02	25	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/Euclid Ave (SR 0980)	Signal	D (E-56.6)	D (D)	E (C)	C (C)	D (D)
1009-02	17	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	AWSC	A (A)	A (A)	A (B)	A (A)	A (A)
1009-05	18	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/Old Morganza Rd	Signal	B (B)	B (A)	B (C)	C (D)	B (C)
1009-06	19	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	TWSC	B (A)	--	*A (A)	*A (A)	B (A)
1009-08	20	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	AWSC	C (F-135.1)	F-98.1 (E-43.5)	--	B (F-67.4)	F-64.3 (F-86.3)
1009-09	21	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	F-90.1 (F-96.3)	--	D (D)	D (D)	D (E-76.9)
1009-10	22	Curry Ave	Morganza Rd (SR 1009)	TWSC	*A (A)	*A (A)	--	E-35.1 (D)	E-35.1 (D)
1009-11	23	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal	--	D (D)	B (B)	A (A)	B (C)
1009-12	24	Weavertown Rd (SR 1025)/Cavasina Dr	Morganza Rd (SR 1009)	Signal	D (F-92.1)	D (E-56.6)	F-512.5 (F-1315.4)	F-1168.5 (F-1213.7)	F-285.4 (F-444.0)
1009-14	26	Pike St (SR 1009/SR 0980)	North Central Ave (SR 0980)/(SR	Signal	B (A)	A (B)	B (B)	B (B)	B (B)
1023-01	29	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	B (C)	B (C)	A (A)	A (C)	A (C)
1025-01	27	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	--	--	*A (A)	*A (A)	*A (A)
1025-02	28	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	TWSC	F-186.6 (F-75.6)	C (B)	*A (A)	*A (A)	F-186.6 (F-75.6)
1032-01	36	I-79 NB Ramps	Southpointe Blvd (SR 1032)	TWSC	*A (A)	*A (A)	F-258.8 (F-542.6)	--	F-258.8 (F-542.6)
1032-02	35	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	A (F-148.8)	D (F-128.5)	--	D (F-131.2)	D (F-139.6)

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2018 Existing LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
1032-03	34	Southpointe Blvd	Corporate Drive	Signal	E-74.8 (D)	--	A (A)	B (B)	B (B)
1032-04	33	Southpointe Blvd	Technology Dr (North)	Signal	C (C)	--	A (A)	A (A)	A (A)
1032-05	32	Southpointe Blvd	Technology Dr (South)	Signal	C (C)	--	A (A)	A (A)	A (B)
1032-06	31	Southpointe Blvd	Consol Energy Dr	Signal	C (C)	--	A (A)	B (B)	A (B)
1032-07	30	Southpointe Blvd	Town Center Way	Signal	C (D)	--	A (A)	A (B)	A (C)
0019-03	01	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	--	C (D)	B (C)	B (B)	B (C)
0019-05	02	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley	Signal	C (E-55.0)	C (C)	B (B)	B (B)	B (B)
0019-07	03	Washington Rd (US 0019)	McMurry Rd (SR 1002)	Signal	E-59.1 (E-72.9)	D (F-96.1)	C (D)	D (F-81.5)	D (E-71.3)
0019-08	04	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	C (C)	C (E-64.2)	A (B)	B (C)	B (C)
0019-09	05	Washington Rd (US 0019)	McDowell Ln	Signal	C (C)	--	B (D)	A (C)	A (C)
0019-11	06	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C (D)	C (D)	C (C)	B (C)	C (C)
0019-12	07	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	C (D)	C (C)	D (C)	C (C)	C (C)
0019-14	08	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	D (D)	--	C (C)	D (C)	C (C)
0050-01	38	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	TWSC	*A (A)	*A (A)	B (C)	--	B (C)

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2018 Existing LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
0050-02	37	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	TWSC	*A (A)	*A (A)	--	C (C)	C (C)
0018-01	40	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	--	B (C)	B (C)
0018-02	39	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	--	B (B)	A (A)
0019-15	09	Washington Rd (US 0019)	Meadowbrook Dr	Signal	B (C)	--	A(A)	A (A)	A (A)
0019-16	10	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	A (B)	C (D)	B(C)	B (C)	B (B)
1009-19	16	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (C)	C (D)	C(C)	C (C)	C (C)
1041-01	15	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	C (C)	B (C)	--	C (C)	C (C)
1041-02	14	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	A (B)	B (B)	A(A)	--	B (B)
1041-03	13	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (B)	B (C)	C(C)	B (B)	B (B)
1041-04	12	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	B (C)	C (C)	C(C)	C (C)	C (C)
1041-05	11	Racetrack Rd (SR 1041)	Meadows Rd	Signal	A (B)	B (C)	--	C (C)	B (B)

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2040 Mitigated LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall	Mitigation
0980-02	25	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/Euclid Ave (SR 0980)	Signal	C(E-64.7)	C(E-57.4)	D(D)	D(E-66.7)	D(D)	Add WB lane from node 24 to node 25, add NB right turn lane with 225' of storage
1009-02	17	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	Signal	A(C)	B(D)	B(C)	B(B)	B(C)	Meets warrants to place an actuated-uncoordinated signal system with 120 second cycle. 150' left turn lanes provided on all approaches
1009-05	18	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/Old Morganza Rd	Signal	C(D)	C(A)	C(F-91.5)	C(E-56.9)	C(D)	Additional WB/EB lane from node 36 to node 18, EB approach is a right, thru and a left, with the right turn having a storage of 150'. SB approach gets an additional SB thru lane, which continues until node 19, where the right turn drops.
1009-06	19	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	TWSC	C(A)		A(A)	A(A)	A(A)	Additional SB lane on the SB approach, drops off at this intersection
1009-08	20	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	Stop	A(B)	A(D)		C(C)	B(C)	Meets signal warrants, 150' of turn lane storage provided on all approaches
1009-09	21	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	E-78.9(E-58.3)		C(C)	C(C)	C(C)	Channelize the EB right turn, and have it continue down Morganza Rd as a lane add, NB left is now protected
1009-10	22	Curry Ave	Morganza Rd (SR 1009)	TWSC	A(A)	A(A)		F-68.2(F-140.1)	A(A)	No mitigation required
1009-11	23	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal		D(F-133.1)	B(C)	A(B)	C(D)	No mitigation required
1009-12	24	Weavertown Rd (SR 1025)/Cavasina Dr	Morganza Rd (SR 1009)	Signal	C(D)	C(D)	D(E-57.0)	C(E-75.4)	C(D)	SB, additional approach lane, dedicated right turn lane, with 150' storage, have a thru/right, and a dedicated left turn lane. add WB left turn lane w/ 700' storage. NB two additional approach lanes from node 27, two dedicated left turn lanes, dedicated thru lane and 2 channelized right turn lanes. EB Add thru/left lane, change thru right to two dual right turn lanes.
1009-14	26	Pike St (SR 1009)/(SR 0980)	North Central Ave (SR 0980)/(SR 1027)	Signal	B(C)	B(B)	B(F-91.7)	B(C)	B(D)	Additional lane from node 25 that continues to node 26. WB approach changes to thru/right and a dedicated left turn lane.
1023-01	29	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	C(F-80.6)	C(E-66.1)	B(B)	A(D)	B(D)	Add 150' left turn lane on all approaches
1025-01	27	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	A(A)		A(A)	A(A)	A(A)	SB additional lane continues from node 24 to node 27, where it drops off as a dedicated right turn lane.
1025-02	28	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	Signal	D(C)	D(D)	C(C)	B(C)	C(C)	Signalize intersection
1032-01	36	I-79 NB Ramps	Southpointe Blvd (SR 1032)	Signal	B(C)	C(C)	C(D)		C(C)	Meets warrant to place an actuated coordinated system. Additional EB thru lane from node 35 through node 36, lane continues to node 18. Additional lane from node 18 to node 36, additional receiving lane on the NB approach
1032-02	35	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	A(E-55.2)	C(D)		E-57.3(E-58.8)	C(D)	SB dual left turn lanes added w/ 250' storage, WB left turn lane added w/ 300' storage, and EB thru lane added, EB right lane storage increased to 500'
1032-03	34	Southpointe Blvd	Corporate Drive	Signal	E-68.5(D)		A(C)	A(C)	B(C)	No mitigation required
1032-04	33	Southpointe Blvd	Technology Dr (North)	Signal	C(D)		A(B)	A(A)	A(B)	No mitigation required
1032-05	32	Southpointe Blvd	Technology Dr (South)	Signal	D(D)		A(B)	A(B)	A(B)	No mitigation required
1032-06	31	Southpointe Blvd	Consol Energy Dr	Signal	C(C)		A(A)	B(B)	A(C)	No mitigation required

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2040 Mitigated LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall	Mitigation
1032-07	30	Southpointe Blvd	Town Center Way	Signal	C(E-78.1)		A(A)	B(B)	A(C)	No mitigation required
0019-03	01	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	-	D(D)	C(D)	B(C)	C(D)	No mitigation required
0019-05	02	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley Rd	Signal	D(D)	C(D)	B(C)	C(C)	B(C)	No mitigation required
0019-07	03	Washington Rd (US 0019)	McMurray Rd (SR 1002)	Signal	D(D)	D(D)	C(D)	C(C)	C(D)	<p>The PM Peak had a LOS F for the EBT, WBL, WBT, NBL, NBT, SBL, and SBT movements. Each approach had an overall LOS F for PM Peak. Adjusted cycle length from 150s to 90s and altered the timings accordingly. Added lane for NBL, SBL, EBL, WBL, EBT, WBT, and SBR.</p> <p>All movements improved in level of service and queue length. Overall intersection LOS improved from F to D.</p>
0019-08	04	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	C(C)	C(E-60.9)	A(B)	B(E-59.7)	B(D)	<p>The PM Peak had a LOS F for the WBT, SBL, and SBT movements. Adjusted the cycle length from 130s to 90s and altered the timings accordingly. Added WBL turn lane.</p> <p>All movements improved in level of service and queue length. Overall intersection LOS improved from E to D.</p>
0019-09	05	Washington Rd (US 0019)	McDowell Ln	Signal	B(C)	-	B(E-78.0)	A(D)	B(E-55.9)	<p>The PM Peak had a LOS F for the NBT movement. Adjusted the cycle length from 130s to 90s. Added EBL turn lane.</p> <p>All movements improved in level of service and queue length except for the NBL. The NBL now has a LOS E (56.5s) compared to LOS E (65.6s). Overall intersection LOS remained E.</p>
0019-11	06	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C(D)	D(E-55.1)	C(D)	C(D)	C(D)	<p>The PM Peak had a LOS F for the EBL, WBL, NBL, NBT, and SBL movements. Adjusted the cycle length from 130s to 100s and altered the timings accordingly. Added a SBL turn lane.</p> <p>All movements improved in level of service except for the WBL, NBL, and SBL which all remained at LOS F. The WBL now has a LOS F (108.6s) compared to LOS F (188.4s). The NBL now has a LOS F (118.5s) compared to LOS F (96.1s). The SBL now has a LOS F (95.5s) compared to LOS F (139.8s). All movements improved in queue length. Overall intersection LOS improved from E to D.</p>
0019-12	07	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	C(D)	E-54.4(D)	D(C)	D(D)	D(D)	<p>The PM Peak had a LOS F for the EBL, EBT, WBL, WBT, NBL, and SBL movements. Adjusted the cycle length from 140s to 100s. Added lane for EBL and WBL.</p> <p>All movements improved in level of service except for the NBL, SBL, and SBT movements. The NBL now has a LOS F (105.8s) compared to LOS F (203.1s). The SBL now has a LOS F (92.0s) compared to LOS F (108.5s). The SBT now has a LOS E (61.2s) compared to LOS E (69.4s). All overall approach levels of service improved. Overall intersection LOS improved from E to D.</p>

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2040 Mitigated LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall	Mitigation
0019-14	08	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	D(D)	-	C(C)	C(C)	C(C)	The PM Peak had a LOS F for the EBL, NBL, and SBT movements. Adjusted the cycle length from 150s to 90s. Added lane for SBR and EBL. All movements improved in level of service except for the EBR movement. The EBR now has a LOS D (35.1s) compared to a LOS D (43.8s). All movements improved in queue length. All overall approach levels or service improved. Overall intersection LOS improved from F to C.
0050-01	38	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	Stop	A(A)	A(A)	C(E-47.5)	-	A(A)	No mitigation required
0050-02	37	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	Stop	A(A)	A(A)	-	C(F-66.2)	A(A)	No mitigation required
0018-01	40	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	-	F-50.9 (F-56.9)	F-50.9 (F-56.9)	None
0018-02	39	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	-	B (B)	B (B)	None
0019-15	09	Washington Rd (US 0019)	Meadowbrook Dr	Signal	B (C)	-	A (A)	B (B)	B (B)	None
0019-16	10	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	B (C)	C (E-58.5)	B (D)	B (C)	B (C)	The PM peak had a LOS E for the EBL, NBL, SBL & SBT movements. Adjusted the cycle length from 160s to 105s and altered the timings accordingly. Made the EB and WB approaches split phased. Created a dual EBL turn by adding a left to the thru lane. All movements improved in level of service and queue length - except for the EBT and the WBL. The WBL has a LOS D (53.9s) compared to LOS E (65.1s) and the EBT now has a LOS E (66.0s) compared to LOS D (40.8s).
1009-19	16	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (C)	C (D)	C (C)	C (D)	C (D)	The PM peak had a LOS E (56.1s) for the NBT movement. Kept the same cycle length. Took 1.5s from the EB/WB movements and gave it to the NBT/SBT movements.
1041-01	15	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	C (C)	C (C)	-	C (D)	C (C)	None
1041-02	14	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	A (B)	B (B)	B (B)	-	B (B)	None
1041-03	13	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (B)	C (C)	C (C)	B (B)	B (C)	None
1041-04	12	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	C (C)	C (D)	C (C)	C (D)	C (C)	None
1041-05	11	Racetrack Rd (SR 1041)	Meadows Rd	Signal	A (B)	B (C)	-	C (C)	B (C)	None

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2040 No-Build LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
0980-02	25	Adams Ave/Pike St (SR 0980)	Morganza Rd (SR 1009)/Euclid Ave (SR 0980)	Signal	F-111.9 (F-193.3)	F-115.8 (F-170.8)	F-176.0 (F-144.1)	D (E-68.1)	F-129.8 (F-161.3)
1009-02	17	Morganza Rd (SR 1009)	Morgan Rd/Baker Rd	AWSC	C (D)	F-124.6 (F-85.6)	D (F-388.0)	F-79.2 (F-117.5)	F-79.3 (F-212.8)
1009-05	18	Morganza Rd (SR 1009)	Southpointe Blvd (SR 1032)/Old Morganza Rd	Signal	C (D)	C (B)	D (F-130.1)	D (E-58.2)	D (E-69.3)
1009-06	19	Morganza Rd (SR 1009)	Lewicki Rd (SR 1036)	TWSC	C (A)	--	*A (A)	*A (A)	C (A)
1009-08	20	Morganza Rd (SR 1009)	West McMurry Rd (SR 1002)	Stop	E-38.0 (F-316.4)	F-423.6 (F-250.0)	--	F-58.9 (F-341.7)	F-248.0 (F-304.3)
1009-09	21	Morganza Rd (SR 1009)	Southpointe Blvd	Signal	F-114.1 (F-147.9)	--	C (E-59.3)	D (E-70.3)	D (F-107.7)
1009-10	22	Curry Ave	Morganza Rd (SR 1009)	TWSC	*A (A)	*A (A)	--	F-75.3 (F-140.1)	F-75.3 (F-140.1)
1009-11	23	Morganza Rd (SR 1009)	McClelland Rd (SR 1023)	Signal	--	D (F-133.1)	B (C)	A (B)	C (D)
1009-12	24	Weavertown Rd (SR 1025)/Cavasina Dr	Morganza Rd (SR 1009)	Signal	F-104.0 (F-374.1)	E-71.1 (F-208.7)	F-727.5 (F-1270.4)	F-1847.8 (F-4063.2)	F-393.2 (F-993.8)
1009-14	26	Pike St (SR 1009)/(SR 0980)	North Central Ave (SR 0980)/(SR 1009)	Signal	A (B)	B (E-64.9)	C (F-134.6)	C (C)	B (E-63.3)
1023-01	29	McClelland Rd (SR 1023)	McDowell Ln/DeMar Blvd	Signal	C (F-96.1)	C (C)	B (B)	A (F-641.2)	B (F-330.8)
1025-01	27	Weavertown Rd (SR 1025)	I-79 SB On-ramp	Stop	--	--	*A (A)	*A (A)	*A (A)
1025-02	28	Weavertown Rd (SR 1025)	I-79 NB Off-ramp/Hook St	TWSC	F-1008.7 (F-1730.0)	C (B)	*A (A)	*A (A)	F-1008.7 (F-1730.0)
1032-01	36	I-79 NB Ramps	Southpointe Blvd (SR 1032)	TWSC	*A (A)	*A (A)	F-1161.2 (F-3116.5)	--	F-1161.2 (F-3116.5)
1032-02	35	I-79 SB Ramps	Southpointe Blvd (SR 1032)	Signal	B (F-354.6)	F-110.1 (F-266.2)	--	D (F-432.1)	F-86.3 (F-331.7)

* Approach is uncontrolled (free-flow)

Northern Washington SPC: 2040 No-Build LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
1032-03	34	Southpointe Blvd	Corporate Drive	Signal	F-124.0 (D)	--	A (B)	C (D)	C (C)
1032-04	33	Southpointe Blvd	Technology Dr (North)	Signal	C (D)	--	A (B)	A (A)	A (B)
1032-05	32	Southpointe Blvd	Technology Dr (South)	Signal	D (D)	--	A (B)	A (B)	A (B)
1032-06	31	Southpointe Blvd	Consol Energy Dr	Signal	C (C)	--	A (A)	B (B)	A (C)
1032-07	30	Southpointe Blvd	Town Center Way	Signal	C (E-78.1)	--	A (A)	B (B)	A (C)
0019-03	01	Valley Brook Rd Ramp (SR 1081)	Washington Rd (US 0019)	Signal	--	D (E)	C (D)	B (C)	C (D)
0019-05	02	Washington Rd (US 0019)	Gateshead Rd/Hidden Valley	Signal	D (E-77.1)	C (E-55.2)	B (C)	C (C)	B (C)
0019-07	03	Washington Rd (US 0019)	McMurry Rd (SR 1002)	Signal	F-93.5 (F-100.2)	E-65.8 (F-149.3)	D (F-141.1)	E-73.0 (F-208.8)	E-65.3 (F-160.0)
0019-08	04	Washington Rd (US 0019)	Donaldson Crossroads Shopping Center Dr/Dam Rd	Signal	C (D)	C (F-108.9)	A (C)	B (F-94.6)	B (E-69.0)
0019-09	05	Washington Rd (US 0019)	McDowell Ln	Signal	C (D)	--	B (F-95.5)	A (E-64.7)	B (E-77.5)
0019-11	06	Waterdam Plaza Dr/Waterdam Rd (SR 1053)	Washington Rd (US 0019)	Signal	C (E-68.9)	D (F-87.1)	C (F-82.7)	C (E-64.7)	C (E-74.4)
0019-12	07	Galley Rd (SR 1023)/McClelland Rd (SR 1023)	Washington Rd (US 0019)	Signal	F-82.9 (F-143.6)	E-62.4 (F-141.3)	D (D)	D (E-58.1)	D (E-79.0)
0019-14	08	Washington Rd (US 0019)	Weavertown Rd (SR 1025)	Signal	F-105.2 (F-117.6)	--	E-58.4 (D)	F-87.4 (F-120.1)	F-80.5 (F-91.2)
0050-01	38	Millers Run Rd (SR 0050)	Cecil Henderson Rd (SR 1010)	TWSC	*A (A)	*A (A)	C (E-47.7)	--	C (E-47.7)

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Northern Washington SPC: 2040 No-Build LOS Table

ID	Synchro Node ID	North/South	East/West	Control Type	EB	WB	NB	SB	Overall
0050-02	37	Millers Run Rd (SR 0050)	Reissing Rd (SR 1001)	TWSC	*A (A)	*A (A)	--	C (F-96.7)	C (F-96.7)
0018-01	40	Burgettstown Rd (SR 0018)	Main St (SR 0050)/Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	--	F (F)	F (F)
0018-02	39	Henderson Rd (SR 0018)	Avella Rd (SR 0050)/ Hickory Rd (SR 0018/SR 0050)	TWSC	*A (A)	*A (A)	--	B (B)	B (B)
0019-15	09	Washington Rd (US 0019)	Meadowbrook Dr	Signal	C (C)	--	A (B)	B (B)	B (B)
0019-16	10	Washington Rd (US 0019)	Racetrack Rd (SR 1041)	Signal	B (D)	C (E)	B (D)	B (D)	B (D)
1009-19	16	Pike St (SR 1009)	Allison Hollow Rd/Racetrack Rd (SR 1041)	Signal	C (C)	C (E)	B (D)	C (D)	C (D)
1041-01	15	I-79 SB Ramps	Racetrack Rd (SR 1041)	Signal	B (C)	B (B)	--	C (C)	B (C)
1041-02	14	I-79 NB Ramps	Racetrack Rd (SR 1041)	Signal	A (B)	A (B)	A (A)	--	A (B)
1041-03	13	Meadowlands Blvd	Racetrack Rd (SR 1041)	Signal	B (B)	B (C)	C (C)	B (B)	B (B)
1041-04	12	Racetrack Rd (SR 1041)	Johnson Rd (SR 1039)/Tanger Blvd	Signal	C (C)	C (C)	C (C)	D (D)	C (C)
1041-05	11	Racetrack Rd (SR 1041)	Meadows Rd	Signal	A (B)	B (B)	--	B (C)	B (B)

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