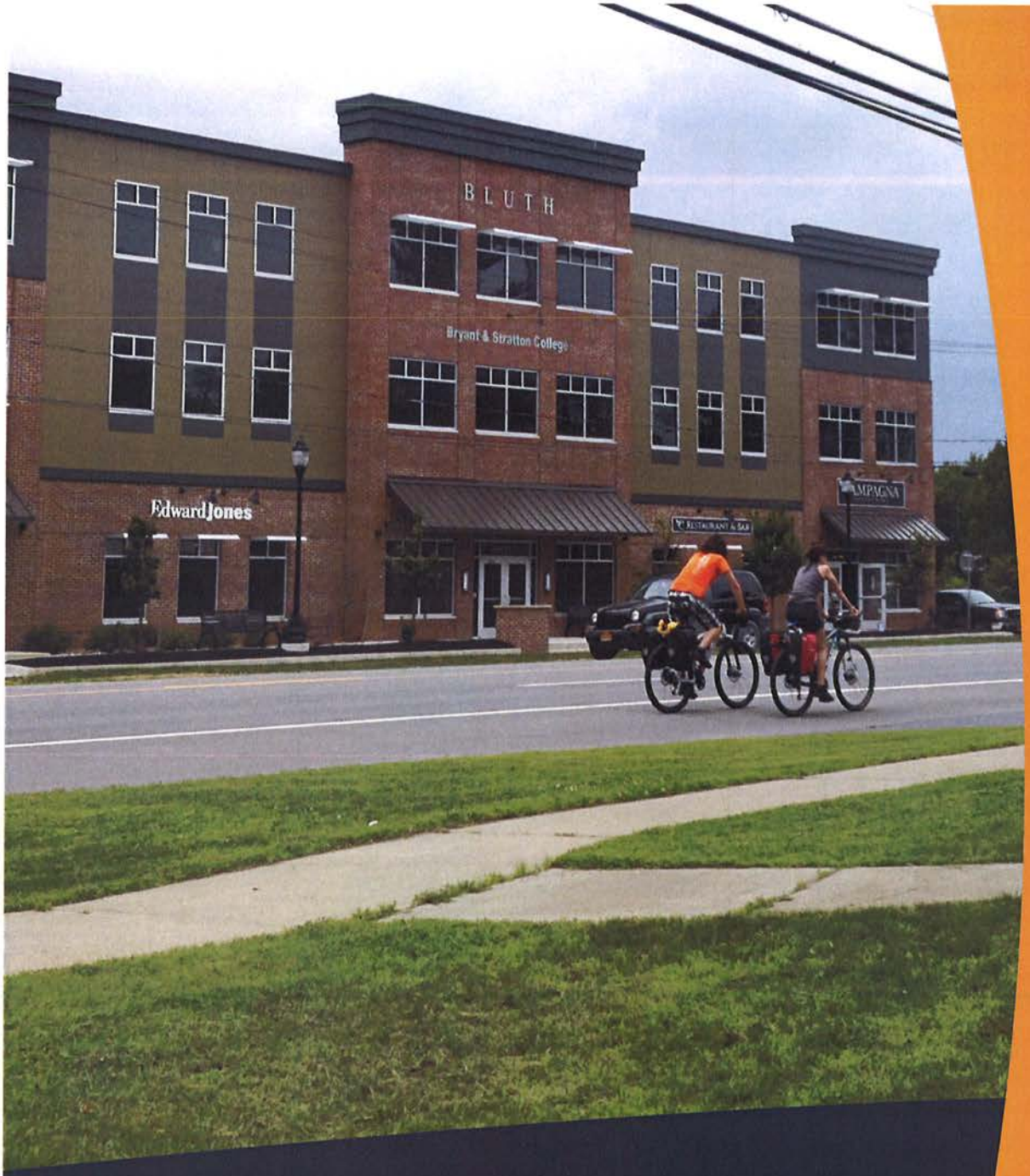

TOWN OF MALTA

SARATOGA COUNTY, NEW YORK

FEASIBILITY ASSESSMENT OF RECONFIGURING US ROUTE 9 IN THE CORE DOWNTOWN AREA AS A COMPLETE STREET

MJ Project #1160.01

December 2017

Town of Malta Est. 1802

CDTC Capital District Transportation Committee

Engineering and Land Surveying, P.C.

CDTC'S COMMUNITY AND TRANSPORTATION LINKAGE PLANNING PROGRAM

The Capital District Transportation Committee (CDTC) is the designated metropolitan planning organization (mpo) for Albany, Rensselaer, Saratoga, and Schenectady Counties. Every metropolitan area in the country with a population of more than 50,000 must have a MPO in order to qualify for federal transportation funding. The function of the MPO is to provide a forum for State and local officials to discuss transportation issues, and to develop a transportation plan and capital program for the region. The regional transportation plan for the Capital District is called New Visions 2040. The Community Linkage Program is a key element of the plan.

CDTC's Linkage program provides integrated land use and transportation planning assistance to Capital Region communities. The program is designed to implement the adopted planning and investment strategies in CDTC's New Visions Plan. CDTC's adopted strategies and policies reflect a strong regional consensus indicating that the region's quality of life, mobility, and economic vitality are dependent upon improved local land use planning, and on better integration of land use and transportation decision-making. CDTC has helped fund 86 planning studies since 2000 with sponsors representing 40 different urban and suburban municipalities, rural communities, counties, not-for-profit groups, and other public entities.

For more information on the Linkage program, visit CDTC's website at www.cdtcmpo.org/linkage.htm

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DISCLAIMER
This report was prepared in cooperation with the Town of Malta, Capital District Transportation Committee (CDTC), the Capital District Transportation Authority (CDTA), Capital District Regional Planning Commission (CDRPC), and the New York State Department of Transportation (NYSDOT). This report was funded in part through a grant from the Federal Highway Administration and Federal Transit Administration of the United State Department of Transportation. The contents do not necessarily reflect the views or policies of these governmental agencies.

This report is intended to support the Town's efforts to advance transportation actions recommended under its form-based code plan for the downtown area for the Town, adopted on February 13, 2013. This report does not commit the Town of Malta, Saratoga County, NYSDOT, CDTC or CDTA to funding any improvements. Additional engineering will be required prior to advancing the actions identified in this study.

This report represents a consensus-based document supported by a rigorous planning and engineering analysis. Study Advisory Committee (SAC) member input, insight and expertise was critical to its development. While there is a wide variety of organizations represented by the SAC members, content herein has consensus support of the individuals SAC members, not necessarily their affiliation.

FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA OF THE TOWN OF MALTA AS A COMPLETE STREET

ASSESSING THE GEOMETRIC "FIT" OF THE PROPOSED FORM-BASE CODE STREET CROSS-SECTION

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FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA OF THE TOWN OF MALTA AS A COMPLETE STREET

SUMMARY OF FINDINGS

- The purpose of the study was to determine whether the desired complete street section included in the adopted Form-Based Code Plan, can: (1) be accommodated without significant grade modification (limited reconstruction); (2) remain within the confines of a repaving and curbing project (no additional right-of-way); and (3) can function well (traffic level-of-service) over the 20-year life of the project.

- The proposed project is consistent with adopted regional plans and policies. CDTC's *New Visions 2040* encourages transportation investment which supports convenient and safe travel for all people as appropriate to a community's context. New York's complete street policy states the same principle.

- Because of the modest study budget, the study relied on using available data from secondary sources to evaluate the geometric fit of the proposed complete street cross-section. Collecting new survey data would be more appropriate for an engineering and design study. Despite the limitations of using secondary data sources, the conclusions of this study are reliable at the planning level. Although they are subject to refinement during design, they are strong enough to reaffirm Town policies.

- The physical and operational characteristics of US 9 are documented in the previously reviewed memorandum titled, *Transportation System Profile*. Under existing geometry, the corridor functions well during the entire day with a very good level-of-service, and will continue to do so for the next 20 years. The analysis also showed that a road diet is feasible. Although it would result in a small degradation of LOS at some locations, it would be consistent with Town desires for speed calming and walkability

- The proposed FBC complete street does not fit within publicly-owned right-of-way. Some strip-takings (2-15 feet) will be required along most of the corridor. To avoid any strip-takings, some complete street treatments would have to be modified or removed, but doing so would degrade the benefit of a complete street. Reducing the number of travel lanes through a road diet would eliminate the need for additional right-of-way.

- Constructing a raised median – a key feature of the FBC complete street alternative – requires an effective access management strategy. Town policy that has promoted comprehensive arterial management strategies that include properly located driveways, shared access, and connector streets must continue. Without an effective arterial management strategy, installation of a raised median will be problematic. With a raised median, consolidation of driveways, and continued town center development, additional controlled intersections will be necessary to maintain reasonable property access, create a safer traffic environment, and provide safe and convenient pedestrian crossing locations. The study identified five candidate locations.

- For the most part, construction of the complete street section south of the US 9/NY 67 roundabout will simply require a box widening on both sides of US 9 in order to provide adequate pavement for all complete street features. Where sufficient public property is available, the grading needed to tie in the vertical difference created by the proposed sections and the existing ground can be accommodated. However, there are some locations along the corridor where either easements will be needed or additional right-of-way purchased.

- Fitting the proposed section north of the US 9/NY 67 roundabout will be a bit more difficult. In the core area where existing development is close to US 9 and existing pedestrian space, grading will not be an option, and a full-depth reconstruction across the full width of the roadway will be required. Precise elevation data is required to determine the exact limits of reconstruction.

- The cost of reconfiguring US 9 with all the complete street elements adopted as part of the adopted Form-Based Code Plan will not be cheap. Designing through the federal-aid process, construction cost is estimated to range between $4.4-5.2 million. This cost assumes that all arterial management treatments will be in place prior to construction. Costs could be somewhat lower if the project is built outside of the federal-aid design process. At this time, our understanding is that NYSDOT would require that the engineering design be completed before any part of the project is constructed.

FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA OF THE TOWN OF MALTA AS A COMPLETE STREET

ASSESSING THE GEOMETRIC "FIT" OF THE PROPOSED FORM-BASE CODE STREET CROSS-SECTION

PURPOSE OF THE TECHNICAL REPORT

The purpose of this technical memorandum is to assess the geometric fit of the Town of Malta's proposed form-based code street cross-section within the existing right-of-way of US Route 9. This technical memorandum was compiled by the Capital District Transportation Committee (CDTC) with assistance from MJ Engineering and Land Surveying, P.C. on behalf of the Town of Malta. This document was the subject of review by a study advisory committee with various community representatives and the New York State Department of Transportation (NYSDOT). NYSDOT comments on previous reiterations of this technical report are included in Appendix A.

The following topic areas are covered within this technical memorandum:

- Project Overview
- Candidate Complete Street Sections
- Proposed Form-based Code Complete Street Description
- Issues raised by NYSDOT Regarding Form-based Code Proposal
- Possible Outcomes
- Technical Material Compiled
- Parking
- Geometric Fit Evaluation
- Access Management
- Anticipated Costs

The principles that help guide the discussion of the geometric evaluation of the complete street treatments for US 9 are set forth in Attachment A. Some of the key physical and operational characteristics of US 9 are documented in the companion document titled, Transportation System Profile, included in its entirety in Attachment B.

OVERVIEW

The Town of Malta developed and enacted a form-based code (FBC) plan for its downtown area[1]. The FBC was based on the adopted Downtown Plan, which amended the Town's Comprehensive Master

[1] *Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets, all of which combined create a walkable community. Conventional codes, on the other hand, primarily seek to control the land and development density without regard for the resulting built environment. Conventional codes tell decision makers what not to do. Form-based codes tell what must be done to achieve a community plan. Form-based codes discourage sprawl by encouraging people to walk to where they live to where they work to where they shop and to where they play. Form-based codes require a well-designed complete street to thrive.*

Plan. The FBC created a "core area" along US 9 where land development would be more concentrated and compatible with new urbanism and smart growth principles.

Although US 9 is classified as a core street in the FBC, proposed land use development is unable to fully conform to FBC regulations because of the way the road is presently configured. The purpose of the Linkage Study is to explore the feasibility of reconfiguring US 9 from a higher-speed suburban highway to a feasible complete street concept that is more in context with a hamlet or village setting. The purpose of this technical memorandum is to determine whether, or not the desired complete street section pictured in the FBC Plan, or close variant thereof, can be accommodated without significant grade modification and largely within the confines of a preservation project[2]. The physical and operational characteristics of US 9 are documented in a previously reviewed memorandum titled, *Transportation System Profile.*

The FBC Plan is consistent with current adopted regional plans and policies. New Visions 2040 – the region's long-range transportation plan – encourages transportation investment that is based on a complete streets framework which supports the convenient and safe travel of all people – of all ages and abilities as appropriate to a community's context. New York's complete streets policy – described in New York's Complete Streets Act signed into law by Governor Cuomo on August 15, 2011 – states the same principle. In recognition of the slowing of VMT growth in the 21st century, NYSDOT design manual and other resources encourage designing for non-auto based transportation alternatives, including the right-sizing of roadways instead of expanding road capacity just for automobiles[3]

RATIONALE FOR COMPLETE STREETS IMPLEMENTATION IN THE TOWN OF MALTA DISCUSSED AT THE TIME THE FORM-BASED CODE PLAN WAS ADOPTED

Complete streets are intended to facilitate convenient mobility for all users and means of travel. Complete streets help create a sense of place for the community and may also play a role in enhancing community health, reducing environmental impacts of urban growth, and can even encourage economic development.

Integrating land use and transportation within the Town of Malta is not only important to the Town, but to the region as a whole. In today's competitive marketplace, it is in the economic interest of communities in the Capital Region to maintain a high quality of life for their residents, businesses, and visitors. The Capital District's recent expansion in the nanotechnology sector and other fast-growing technology and educational sectors is creating a regional population with higher expectations for livability. In many instances, that livability is connected to a sense of community, opportunities for shopping and entertainment, high quality housing, recreational amenities, with convenient access to

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[2] *A preservation project is typically limited to resurfacing, but may include some minor geometric modifications, drainage improvements, ADA compliance work, and landscaping. While creating a complete street through a preservation project would be the most economical, some limited major reconstruction work may be required to meet geometric requirements and will be identified in the study.*

[3] *The NYSDOT* ***Complete Streets Report*** *(February, 2014) highlighted several projects that advanced complete street principles across New York State. Major improvements to NY 347 in Port Jefferson, NY 12A in the Town of Chenango, and NY 11 in the Village of Canton transformed those roadways from auto-oriented highways to lower-speed streets serving the community-building objectives of those communities. The report also credited CDTC's Linkage Program and complete streets working group of linking the highway design process to regional and community plans. The proposed US 9 project is just another example of advancing complete streets policy in New York.*

these features by car, transit, bicycle, or walking. Land use and transportation in the Town of Malta are intricately linked and significantly influence these livability factors. Town officials recognize that meeting today's transportation needs requires a balanced approach that examines where it makes sense to integrate complete street elements within a corridor, and which elements are most appropriate.

COMPLETE STREET BENEFITS

Complete streets contribute to a high quality of life for residents, businesses, and visitors. A high quality of life typically includes a walkable, bikeable, thriving community. Complete streets accommodate multiple travel methods for different users, no matter the age or ability of the user. Some examples of complete street elements are sidewalks, safe crossings, bicycle infrastructure, street trees, lighting, and transit treatments.

Communities that embrace complete streets often experience a variety of benefits including increased physical activity, greater sense of place, enhanced public safety, improved mental health, and greater opportunities for economic development.

Opportunities for physical activity leading to improved health: Improving walking and cycling infrastructure increases physical activity for Town residents and visitors. When the built environment is more supportive of physical activity, more opportunities for active transportation to and from places of work, shopping, and recreation can occur. An additional benefit of walking and cycling includes decreased dependence on the automobile, reducing household budgets for fuel and maintenance.

Sense of place: A well-designed complete street helps develop community identity by encouraging more social interaction, trust, and social equity. Elements contributing to these benefits include wider sidewalks, seating areas, distinctive building facades, shade or shelter provided by trees and awnings. Incorporating green space can act to create spaces for social interaction. As an example of green space in the cities of Albany and Troy, community gardens can build social capital and empower community members to improve their neighborhoods.

Public safety: Overall travel safety will improve through dedicated facilities for pedestrians and cyclists. Improvements for pedestrians may include pedestrian signals, new or additional roadway lighting, sidewalks, and well-marked crosswalks. For bicyclists, complete street treatments that contribute to bicyclist safety may include sharrows, buffers between travel and parking lanes, slower traffic speeds, among others. Cycle tracks or bicycle lanes offer a lower rate of injury.

Mental health: Walkable and bikeable communities promote good mental health by providing opportunities to leave automobiles at home for short trips. Walking and biking are associated with reduced anxiety, better sleep quality, positive attitude, and better cognitive performance. Contributing to better mental health are street trees and quality green space.

Economic development: Improved and safer mobility offered by complete streets supports a strong local economy and thriving businesses. By creating a unique sense of place, complete streets can encourage residents and visitors to linger longer in a community or neighborhood. This creates more potential for people to patronize local businesses. In targeting growth in the US 9 corridor, the concept of compact growth can further support a mix of land uses and transportation choices that generate opportunities

for an enhanced commercial tax base while also creating a more attractive environment for residents of the town.

Study Approach and Role of the Study Advisory Committee

The technical analysis described in the scope of work for this project was carried out by CDTC and MJ Engineering staffs. Support was provided by Town of Malta and NYSDOT planning staffs.

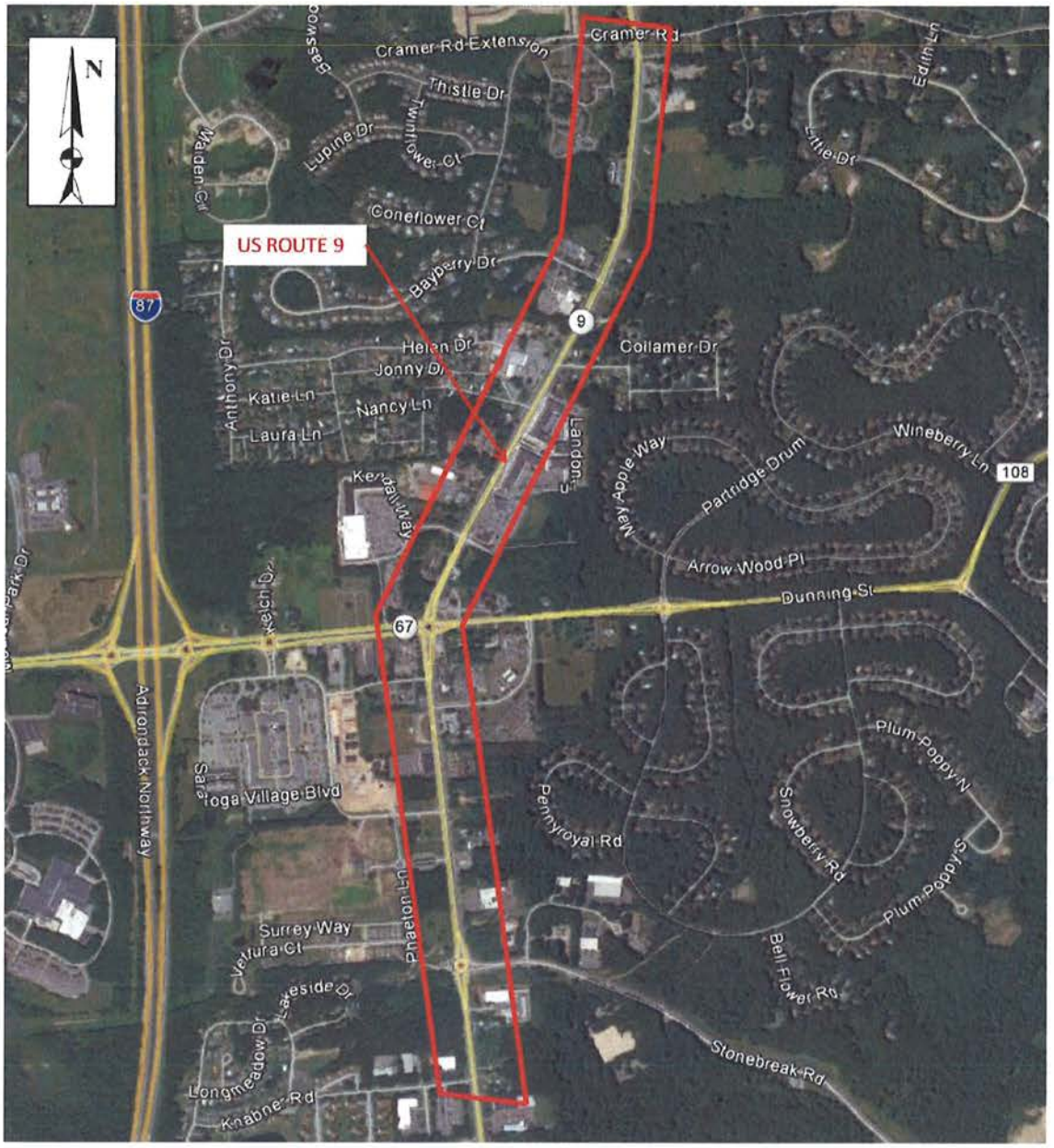
A study advisory committee (SAC) was established to help guide the study, and to review and give feedback on interim study products. The advisory committee included members with diverse interests, including representatives from the Town planning staff, Town Board, Saratoga County, New York State Department of Transportation (NYSDOT–Region 1), Capital District Regional Planning Commission (CDRPC), and the Capital District Transportation Authority (CDTA), town residents, and the CDTC. A list of committee members is listed on the inside cover of the report. A study team was also formed and met regularly, undertake project tasks, review progress, and guide the overall study. The purpose of both of these committees was to share technical information, provide input on public outreach materials, and to enable informed decision-making.

The Study Advisory Committee met three times over the course of the study, including one field visit. The Technical Advisory Committee met four times and communicated regularly by phone and e-mail. All documents were provided to the Town for review. One public meeting through the Town Board's regularly scheduled business meeting was held, and a second will be held in January, 2018 to present the findings. Public access to documents was made available using CDTC's website and social media.

Candidate Complete Street Sections

The segment of US 9 examined in this study extends roughly 1.8 miles between Cramer Road on the north end and Knabner Road on the south end. The 0.6 mile section between the north end of Ellsworth Commons near Collamer Drive and Saratoga Village Boulevard is considered the *core area* of the corridor. The sections of roadway to the north and south of the core area are considered *transitional.* The core area is where land-use and street function is more likely to occur in the critical short-term. For this study, short-term is defined as the ten-year period 2016-26. Map 1 shows the study area for this complete street analysis.

Map 1 – STUDY AREA LOCATION MAP



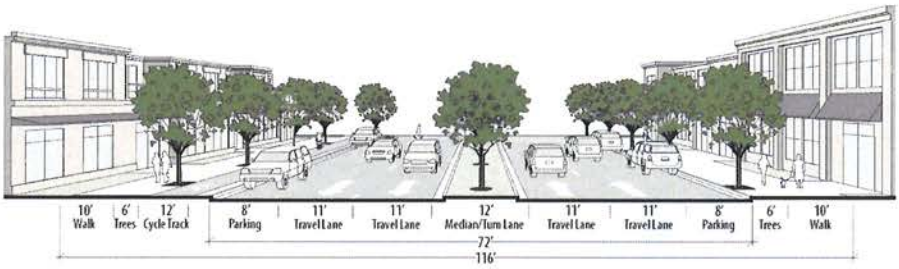
THE PROPOSED FBC COMPLETE STREET DESCRIPTION

The complete street cross-sections for the core and transition areas of the corridor that were adopted as part of the Form-Based Code (FBC) Plan are shown in Figures 1 and 2.

The *core area* cross-section (Figure 1) would maintain four 11-foot travel lanes through the corridor. The existing two-way turn lane would be converted to a raised landscape or decorative hardscape median with breaks designed to separate directional traffic while managing private and public property access and to provide refuge for pedestrians crossing the roadway. The proposed design calls for two 8-foot parking lanes, a 12-foot "cycle track" (termed a *separate bikeway* in NYSDOT's Design Manual) on the west side of US 9, 6-foot planting areas and 10-foot sidewalks on each side of the roadway. The highway right-of-way width required for the full build-out that accommodates all of the proposed complete street treatments is approximately 116 feet. The width of the highway section, including travel lanes, median, and parking is approximately 72 feet.

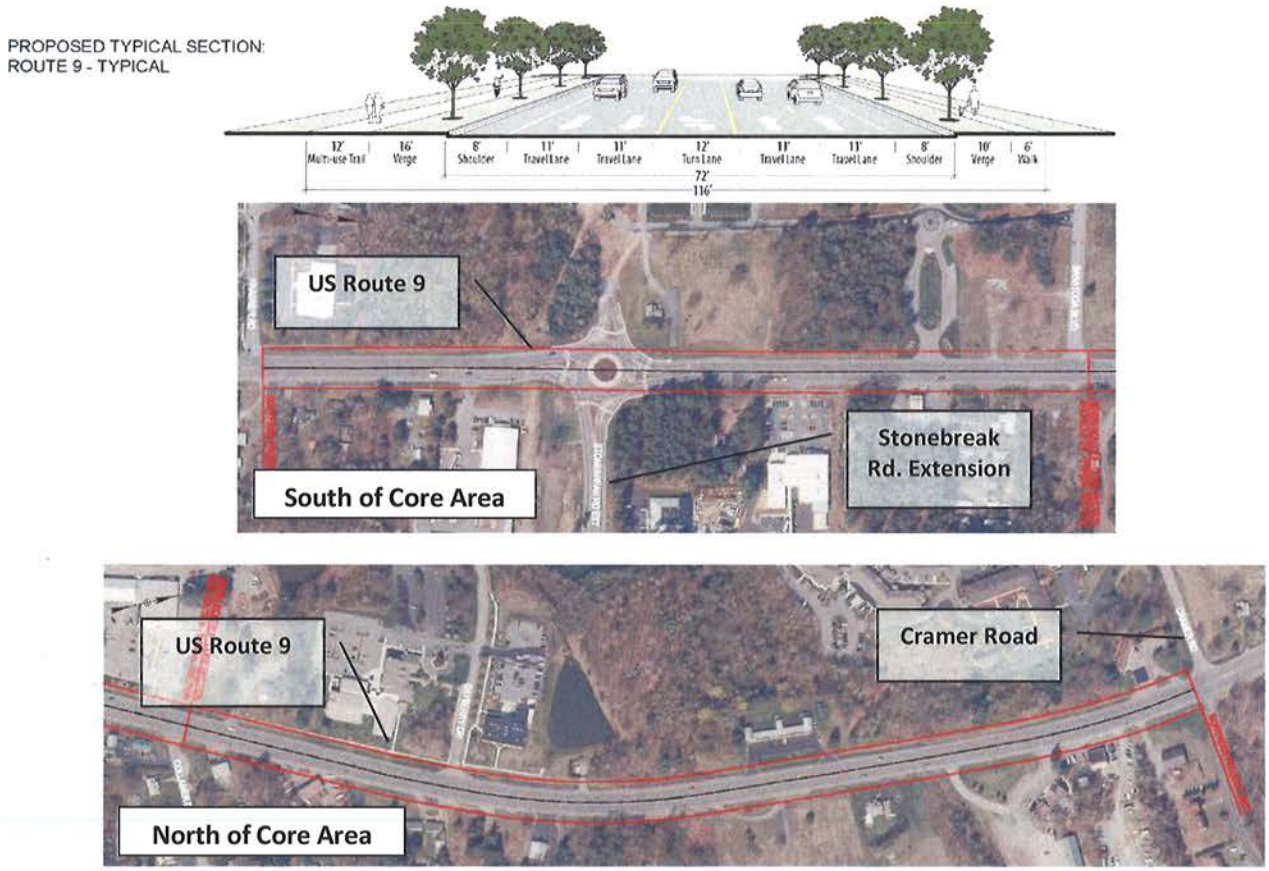
Figure 1 – Proposed FBC Route 9 Core Area Section

PROPOSED TYPICAL SECTION:
ROUTE 9 - CORE



The *transitional* cross-section (Figure 2) would also maintain four 11-foot travel lanes with 8-foot shoulders and would retain the flush median treatment to accommodate left turning traffic. The proposed concept calls for a 16-foot vegetation strip and 12-foot shared-use path on the west side of Route 9 and a 10-foot vegetation strip and 6-foot sidewalk on the east side of Route 9. The full build-out width within the *transitional* area is equal to the 116-foot width required in the core area. Consistent with the study's adopted principles, the plan calls for eventually extending the raised median and other complete street features through the transitional areas as well.

Figure 2 – Proposed FBC Route 9 Transitional Area Section



Under the FBC Plan proposal, bicycle travel in the core area would be accommodated with a "cycle track" or separated bicycle path located on one side of US 9, and by a shared-use path through the transitional area. Alternative bicycle treatments, like directional separated facility on each side of the corridor and other operational designs, will be evaluated in any future design effort.

Road diet options that reduce pavement width through the corridor will also be explored in the design study. It looks like US 9 traffic volumes are sufficiently low enough to satisfy the warrants for "right-sizing" the highway, at least in one direction through the corridor[4].

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[4] *The FBC plan does not call for right-sizing at this time, though it may be possible. According to NYSDOT, FHWA, and other sources, dieting could work where daily demand is below 20,000 vpd. According to CDTC's Arterial Capacity Guidelines, right-sizing can be considered if peak direction demand is below 1,300 vph during the peak travel hour. CDTC's STEP Model estimated average weekday demand in 2025 for the corridor to range between 18,000 and 23,000 vehicles per day, with peak direction demand to range between 700 and 1,300 vehicles per hour. With well-managed access, right-sizing could work, but will require additional review during design. NYSDOT's official threshold for a road diet is 15,000 AADT on an undivided four lane highway, (per Appendix A of Chapter 18 of the Highway Design Manual). While parts of US 9 carries more than 15,000 vpd, there is potential for right-sizing based on directional flow and other factors. This will require further analysis and discussion as the planning and design process proceeds.*

Issues Raised by NYSDOT's Comments on the Form-Based Code Street Proposals

Advancing the FBC complete street concept would require confirmation that the typical section(s) would fit in the available right-of-way and/or space between existing buildings to accommodate the proposed median, travel lanes, bicycle facilities, and sidewalks. Since horizontal and vertical features differ through the corridor, the evaluation must ensure that the proposed treatment would fit throughout the corridor. This effort addressed four issues that NYSDOT raised at the time the FBC plan was prepared:

1. *The ability to safely accommodate on-street parking for all users:* NYSDOT noted that the shoulder cross-slope in parts of the corridor may be too steep to allow driver and/or passenger doors to open easily (doors hitting or rubbing the pavement or newly installed curbing). Long-term, ADA cross-slope requirements of the parking lane might be an issue as well. High operating speed needs to be addressed.

2. *The location of existing buildings at Ellsworth Commons may constrain the complete street "fit":* NYSDOT noted that any evaluation should confirm both horizontal and vertical fit by demonstrating that sufficient right-of-way is available to accommodate all proposed complete street features, and to determine whether grading is needed to tie in any vertical difference created between the proposed sections and the existing ground and building floor elevations.

3. *Adequacy of the existing closed drainage system through the core area:* NYSDOT is concerned that individual drainage systems that have been constructed may not be sufficient to handle all the drainage once surrounding parcels are built out. While quantifying the cumulative drainage needs for the entire downtown area goes beyond the scope of the Linkage Program, a planning level analysis will be conducted to give us some idea of the physical impacts of installing a closed drainage system and the drainage outlet facilities would have on US 9.

4. *Installing a raised median will impact left-turning traffic:* NYSDOT noted that a method for allowing left-turns and u-turns must be evaluated, and that any treatment must be consistent with New York State Vehicle and Traffic Law (Title 7, Article 8), NYSDOT Design Manual, MUTCD, and other relevant regulation and design guidance. NYSDOT expressed some concern with the access management strategies highlighted in the desired FBC section, noting that a grid system of local streets around US 9 would be critical to the construction of a raised median.

Possible Outcomes

This technical memorandum covers Items 1, 2, and 4 listed above. The planning level analysis of drainage impacts will be conducted once the findings of the "fit" analysis have been reviewed. This analysis will help evaluate the feasibility of the FBC street proposal. The test of feasibility may yield one of several outcomes:

- The desired complete section pictured in the FBC study can be accommodated in the study area largely within the confines of a repaving and curbing project without significant grade manipulation or changes to the existing closed drainage system.
- The desired section can be accommodated horizontally, but elevations, drainage modifications, or other factors necessitate significant roadway reconstruction in order to implement the section.

- Major features of the desired section cannot easily be accommodated within the corridor, and removal/reduction of lanes, or removal of other features, would be required.
- Changes to the cross-section are not possible. Under this condition, operational and regulatory treatments that will help improve the walking and cycling environments will need to be identified.

TECHNICAL MATERIAL COMPILED FOR GEOMETRIC EVALUATION

1. Design Criteria tables for both core and transitional areas (see Attachment C) showing standard and proposed values for various design elements. At this time, two alternatives are shown, one representing the existing highway cross-section, and the second showing the FBC, or complete street, alternative. The complete street alternative was partially vetted at the time the FBC Plan was prepared. The FBC concept was vetted by the community, however a technical evaluation of feasibility to implement the concept had not been conducted. The purpose of this effort is to conduct a technical evaluation of the feasibility and to help address preliminary comments provided by NYSDOT on the initial FBC concept during its preparation. The core area extends roughly from Ellsworth Commons on the north to Saratoga Village Boulevard on the south. Design criteria are offered for the following conditions[5]:

    - Core area with a 30 mph target, or design, speed[6]. Pedestrians to be accommodated with a sidewalk on both sides of US 9. Cyclists to be accommodated with a separated bikeway, often called a cycle track, on the west side of the road.
    - Transition area with a 40 mph target speed. Sidewalk on one side and wide shared–use path on the other.

2. Using the FBC Plan as the context, typical sections showing pavement cross-slopes and other criteria for four locations from north to south as follows:

    - Sta. 28+50 located outside the core area north of Stonebreak Road
    - Sta. 41+00 located inside the core area north of Saratoga Village Boulevard
    - Sta. 65+00 located inside the core area in front of Ellsworth Commons
    - Sta. 99+00 located outside the core area south of Cramer Road

3. Existing Conditions and Proposed General Plans (see Attachment D). Each plan set features the underlying aerial images, right-of-way lines, driveways, and other features for the existing and proposed FBC roadway. Right-of-way boundaries are based on current tax maps and Exit 12 Reconstruction design plans. Within the Core Area, the preliminary raised median layout

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[5] *The approach to street design is changing. Conventional street design, which focuses largely on forgiving driver error and moving cars rather than people, is grounded in a strong road hierarchy with wide roads, broad intersections, and high posted speeds. As NACTO, ITE, and others explain, design elements under a conventional design process are based on "how fast drivers are actually driving rather than how fast drivers ought to actually drive." A road design that fosters high speed is not the kind of road that supports a town center. As an alternative approach, ITE recommends using "target" speed in the design process. Target speed is the speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land use to provide a safe environment for pedestrians and bicyclists. For a town center, target speed should be as low as possible, but not exceed 35 mph.*

[6] *The design speed is either: maximum functional class speed or a speed based on the anticipated (post-construction) off-peak 85th percentile speed within the range of functional class speeds. Coordination with the Regional Traffic Engineer will occur to determine the design speed to be used for selection of the other critical design elements.*

accommodates left-turning traffic and U-turns at key locations as depicted on the Proposed Condition Plans.

4. A series of photographs showing the elevation differences in the core area of the corridor.

USING THE EXISTING SHOULDER FOR PARKING

At the time the FBC was adopted, NYSDOT expressed concern about parking in the corridor. As part of this study, CDTC staff field-tested the shoulder in front of Ellsworth Commons to determine the ability of vehicles to safely and comfortably park. Using a two-person team, CDTC parked a passenger car, opened both driver and passenger doors, left the car, and walked to the sidewalk. Opening the doors did not present a problem in terms of parking area width or cross slope. Walking to the sidewalk required staff to cross a three-foot unpaved area. The current shoulder width is not PROWAG compliant[7] and curb ramps only exist at controlled intersections. The location of curb ramps beyond what currently exists would be evaluated during design.

The speed of traffic is also a concern, but recent speed observations in the area suggest that operating speeds have been decreasing over the last several years. NYSDOT reported a reduction in speeds near Adirondack Trust, with the 85th percentile speed dropping from 44 mph in 2008 to 37 mph in 2016. In an October 2016 field visit, CDTC collected speed data by observing the speed-feedback sign in front of Ellsworth Commons – results were consistent with NYSDOT findings where average speed calculated to 34 mph and 85th percentile speed calculated to 39 mph. With continued enforcement and implementation of other complete street treatments, traffic speeds are expected to decrease further.

NYSDOT has been working with the Town to develop an interim parking arrangement. In an effort to assist the implementation of the FBC vision for the corridor, the Department, pointing to the Town's success in reducing vehicle operating speed, recently agreed to allow the Town to implement on-street parking in front of Ellsworth Common, and will consider parking in adjacent portions of the US 9 Core Area.

On-street parking is accommodated within the complete street plan and will have a more user-friendly feel compared to the current (interim) design. The complete street design will comply with NYSDOT design standards for maximum cross slope within a parking lane.

CONDUCTING THE EVALUATION FOR GEOMETRIC FIT

The feasibility of fitting the typical complete street sections in both the core and transitional areas within available right-or-way was evaluated using the design criteria shown in the Design Criteria Tables, ADA accessibility guidelines, and Chapter 18 of NYSDOT's Highway Design Manual. Feasibility involved the examination of several factors including target speed, horizontal and vertical features, property access, drainage, and storm-water management.

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[7] *PROWAG guidelines for on-street parking state that when the adjacent walkway is 14' or more, accessible parallel parking spaces will include an access aisle of at least 60 in (5ft). When the adjacent walkway is less than 14', accessible spaces should be located at the ends of each block. There should be one accessible parking space in every 25 parking spaces up to 100 spaces, and one in every 50 spaces after 100 spaces.*

The process was fairly straightforward, identifying applicable design standards and guidelines. Once design criteria had been established, transportation engineers evaluated the proposed sections against the design criteria to determine how well the proposed sections would fit within the existing right-of-way. The process allowed engineers to determine what horizontal and vertical adjustments would be required to meet design requirements. **The evaluation relied on existing data, field information, and standards – no new data was generated for this analysis.** The study team and advisory committee fully expects that additional data and analysis will be required to confirm findings derived from this study.

Key findings related to the geometric fit assessment show:

- Sufficient right-of-way width to accommodate all complete street treatments included in the FBC highway sections is not available along much of the corridor. The right-of-way mapping shown on the Proposed General Plans identifies minor strip-takings along approximately 7,500 linear feet of the southbound shoulder and 6,300 linear feet along the northbound shoulder that may be necessary to accommodate sidewalk and landscaping features. A road diet that eliminates or repurposes an existing travel lane would eliminate the need for these strip-takings, but would negatively impact the ability to provide for u-turns in one or both directions.
    - The width of strip takings along the southbound shoulder range from 5 feet to 25 feet, with most takings less than 15 feet wide.
    - The width of strip takings along the northbound shoulder range from 2 feet to 15 feet, with most takings less than 10 feet wide.

- In accordance with Town Code, the existing facilities within the core area already have sufficient and properly designed ADA compliant accessible parking at the rear of buildings. Providing accessible on-street parking is typically not the industry standard, but the possibility will be assessed during final design[8]. Assuming the Town does not want to remove the existing curbed sections from the FBC in the core area, those who need accessible on-street parking would be required to walk between parked cars and the travel lane to access an ADA compliant ramp[9]. For example, exiting a parked vehicle from an on-street space will required the driver to encroach or enter the adjacent travel lane. Subsequent adoption of PROWAG will require consideration during design. The existing and proposed shoulder width is insufficient to do this. A five percent cross-slope is adequate to use the shoulder as a parking lane, but a gentler slope may be desirable based on the guidance and standards listed below. Further, the cross-slope for parking meets the NYSDOT's current minimalist guidelines.
    - NYSDOT's *Highway Design Manual* specifies the acceptable range for parking lane cross-slope to range between 1.5 and 5.0 percent (HDM Section 2.7.2.2).
    - The AASHTO *Guide for Geometric Design of Highways* shows the acceptable cross-slope range at 2.0 to 6.0 percent.

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[8] *In a recent court case in California, the Ninth Circuit Court (Fortyune v. City of Lomita) held that cities should be proactive in creating accessible on-street parking, even if design standards are not available. The Supreme Court denied the city's petition for a writ of certiorari in 2015. The case applied to diagonal parking, not parallel, but it may be wise to err on the side of caution and include accessible on-street parking if at all feasible.*

[9] *In order for on-street parking to be considered "accessible" by PROWAG standards, there must be either a 5' access aisle that "does not encroach on the travel lane", or the spot must be located at the end of a block near the curb ramp and there must be no obstructions to the operation of a wheelchair lift on the sidewalk. These requirements depend on the width of the sidewalk. See the PROWAG technical requirements (section R309.2).*

- ADA PROWAG standards recommend a maximum parking cross slope of 2.0 percent. A 2.0 percent shoulder cross slope is likely to affect the vertical profile of US 9. Subsequent adoption of PROWAG will require consideration during design.

- Figure TYP-02 (see Attachment D) shows the critical existing elevation on the east side of US 9 in the vicinity of Ellsworth Commons to be the floor level of the existing buildings. The intent is to minimize reconstruction and impacts to the existing streetscape by adjusting the shoulder cross slopes within the permissible limits to address the vertical fit. Box-widening, drainage and other complete street elements would result in a plus/minus six inch cut at the curb line. In order to maintain the existing cross-slope across travel lanes and median while maintaining the critical elevation at the existing buildings, a six-inch cut would be required across US 9. Construction of a two percent cross-slope curb-to-curb (specifically to provide a 2% parking lane cross-slope), would likely require a larger cut. This may need to be adjusted to meet recommended PROWAG standards. The shoulder may also require reconstruction; however, this would need to be determined at the time of design. A six-inch or larger cut would most likely require full-depth reconstruction in order to provide necessary structural pavement strength (based on available information). An existing pavement analysis would be done during preliminary design to verify the integrity of the remaining section if plus/minus one inch of existing asphalt was removed. Although the precise limits of reconstruction cannot be assessed until survey is available during preliminary design, the area that may be subject to reconstruction falls approximately between Sta. 59+15 and Sta. 72+80 (roughly between Kendall Way and the northern most Ellsworth Commons driveway).

- Raising the elevation along the existing (east-side) curb line and shoulder to provide a two percent cross-slope might be possible. Given the data available to the study team, it looks like that option could encroach on the finish floor elevation of buildings located adjacent to the three existing driveways. The analysis suggests that the potential exists for substantial disruption to existing structures, and some-type of retaining structure might be required on the west side of US 9 due to the grade change beyond pavement width. This may require some retaining structures. This will be determined at time of design -- a more rigorous engineering analysis through the project design process will be required to determine the best way to accommodate vertical requirements of the project. At this time, however, it seems a curb-to-curb cut would cause the least disruption to existing business investment. Shrinking the width through right-sizing would not affect vertical requirements and impact. The visual appeal and fit of vertical impact and mitigation will have to be evaluated during preliminary engineering. See Attachment E for an illustration depicting the difference in elevation between the building face and the pavement elevation needed to meet the required cross-slope.

Bottom Line Assessment

Construction of the US 9 core and transitional sections identified in the Town's FBC **south of the US 9/NY 67 roundabout** will require a box widening on both sides of US 9 in order to provide adequate pavement width for complete street features. Some strip-takings may be necessary to achieve the proposed FBC section. The proposed pedestrian and bicycle facilities will be sloped toward the shoulder as shown in typical sections. Ideally, travel lanes and center turn lane in the transitional area will be milled and paved with the profile of the roadway remaining the same. This approach is generally a preferred good practice that provides consistency from curb to curb. Constructing to a two percent cross-slope if desired for both travel lane and parking lane can be achieved using this technique. The

existing cross-slope would need to be verified during design. Throughout this part of the corridor, sufficient right-of-way is available to accommodate the grading needed to tie in the vertical difference created by the proposed sections and the existing ground. If sufficient right-of-way is not available at time of design easements may be obtained, acquisition may be explored or an examination of right sizing the roadway would occur.

Based on the information available to the study team, fitting the proposed section in the corridor **north of the NY 67 roundabout** will be a bit more difficult. In the core area where existing development is close to US 9 and the existing pedestrian space, grading will not be an option to tie together the proposed section to the existing ground. In this case, either a full depth reconstruction across the full width of the roadway or reconstruction of the sidewalk area in front of Ellsworth Commons (with profile adjustment) will be required.[10] The limits of US 9 that may be subject to full depth reconstruction extends from Station 59+00 (Kendall Way) to Station 73+00 (Ellsworth Commons Northern Driveway). The limits of profile adjustment will need to be verified during preliminary design after precise existing elevation data is obtained.

Managing Access in the Corridor

Implementing the FBC complete street alternative requires an effective access management strategy. For the last ten years, the Town of Malta -- in its *Comprehensive Plan, US 9 Plan, FBC Plan*, and most recently in the *Town-wide Generic Environmental Impact Statement (GEIS)* – recognized the critical importance of managing access on all major roads throughout the town, especially on US 9. All four plans acknowledge that without a pro-active access management protocol, continued development in the Town will place a significant burden on roads like US 9 – providing unchecked access to adjacent property that will challenge the ability of major arterials to efficiently move people and goods. These studies have also underscored the importance of formulating comprehensive arterial management protocols for the Town's arterial corridors to preserve or restore or preserve the functionality as well as the economic viability of these major corridors. Town policy has promoted comprehensive arterial management strategies that include properly located driveways, shared access, and connector streets. Specific guidelines have been set forth in the Town's *Highway Access Planning Guide* and *Form Based Code Plan.*

As shown on Map 2, the FBC Plan has specifically laid out a strategy for constructing a grid system of local roads for five areas in the US 9 and NY 67 corridors to minimize driveways intersection the highways:

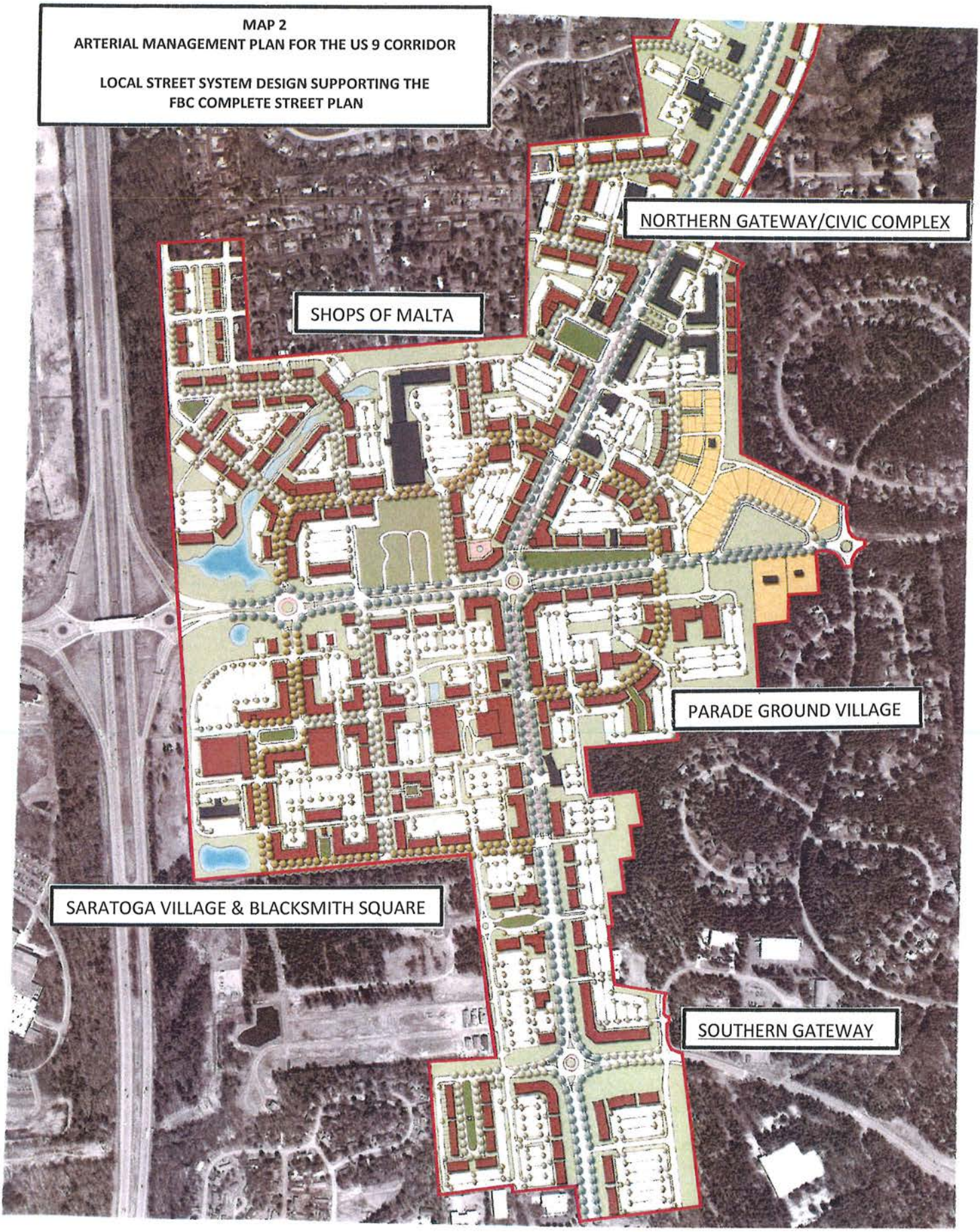
- *Shops at Malta*: This large mixed use retail and residential development is located on the northwest corner of US 9 and Dunning Street. Full access to the site on US 9 is limited to the signalized Kendall Way/US 9 intersection. Full access to Dunning Street is provided at the Route US 9/NY 67 roundabout. Raised medians on NY 67 and at the US 9 approach to the US 9/NY 67 roundabout limits other access to right turns only.

- *Saratoga Village & Blacksmith Square:* A mixed use parcel located on the southwest corner of US 9/NY 67 intersection. Professional office, apartments, hotel, and small retail are served by a

[10] *To the extent a road diet might be possible, reducing the number of lanes (even one) can minimize or even eliminate right-of-way acquisition. It should be noted that this might incur other costs to address lane removal and other roadway changes to accommodate the road diet. Such an examination would also consider the sizing of certain complete street elements.*

MAP 2
ARTERIAL MANAGEMENT PLAN FOR THE US 9 CORRIDOR

LOCAL STREET SYSTEM DESIGN SUPPORTING THE FBC COMPLETE STREET PLAN



grid street system. Uncontrolled access is currently provided at Blacksmith Drive and US 9, at Saratoga Village Boulevard and US 9 or at the roundabout at Blacksmith Drive. Saratoga Village Boulevard is a good candidate for a second controlled access point. The type of controlled access at this location and throughout the corridor is undetermined at this time and would be explored during design stage. The intent is to identify access control to assist with U-turns throughout the corridor. It may also be necessary to have another controlled intersection to provide adequate pedestrian crossing according to NACTO guidelines.

- *Parade Ground Village:* Parade Ground reconfigured with retail fronting US 9 and Dunning Street. Townhouses provide transition between single-family homes and commercial uses. Connections to these properties are being provided by a loop road connecting US 9 at Hemphill Place and Hemphill Place at Dunning Street (currently uncontrolled). Opportunities for creating another controlled intersection either at US 9 at Hemphill Place or Hemphill Place at Dunning Street will have to be assessed in a separate effort.

- *Northern Gateway & Civic Complex*: The plan calls for the reconfiguration of the Malta Town Complex to include community-focused and office-related buildings, including an addition to Town Hall. Currently, access to this area is only through uncontrolled intersections. Realigning Helen Drive and Raymond Drive could provide a controlled access opportunity.

- *Southern Gateway:* New commercial development preserves open space and respects Stonebreak Road right-of-way. Access to property and local streets provided through Stonebreak Road roundabout. A second controlled access could be provided at Landau Boulevard.

Candidate Locations for Additional Controlled Access in the Corridor

Currently there are three controlled intersections in the corridor:

- US 9/NY 67 – roundabout
- US 9/Kelch Drive – traffic signal
- US 9/Stone Break Road – roundabout

With a raised median, consolidation of driveways, and continued town center development, additional controlled intersections will be necessary to maintain reasonable property access, create a safer traffic environment, and provide safe and convenient pedestrian crossing locations. NACTO recommends that pedestrian crossings be provided every 800-1,200 feet in town centers. The study team has identified five candidate locations that are currently stop controlled on the side street:

- US 9/Collamer Drive
- US 9/Ellsworth Commons Main Entrance/Town Complex
- US 9/Hemphill Place
- US 9/Saratoga Village Boulevard
- Dunning/Hemphill Place

Although decisions about the type of control are premature, consideration should be given to roundabouts at US 9 intersections with Collamer Drive and Saratoga Village Boulevard, and the Dunning/Hemphill intersection. Roundabouts at these locations would facilitate u-turns in the corridor.

Town's Approach to Implementing Access Management Treatments Called for in the FBC Plan

For each proposed development, arterial management treatments shown on Map 2 are first discussed early in the project review process in a meeting of the Town staff. The purpose of this meeting is to discuss pre-application materials related to a specific development proposal. At this point in the site plan review process the applicant is advised of access management principles for the corridor, and the expected responsibilities the applicant has in integrating the plan into the development project. The Town of Malta uses a flexible approach with working with developers on locating driveways, cross-easements, and participating in construction of service roads so that decisions can be made in a mutually beneficial way.

Successful plan implementation requires public sector flexibility that is grounded in strong planning guidance that is sensitive to private sector challenges. Municipalities, the Town of Malta included, depend on private sector creativity to design development projects that "fit" into community plans. It is not always possible or desirable to prescribe precisely how access to development will be provided in advance of knowing what kind of development will be proposed. With the plan shown on Map 2, the town has taken the critical first step in providing guidelines – some specific and some general – so that developers can design a project that is consistent with the town's vision for the corridor.

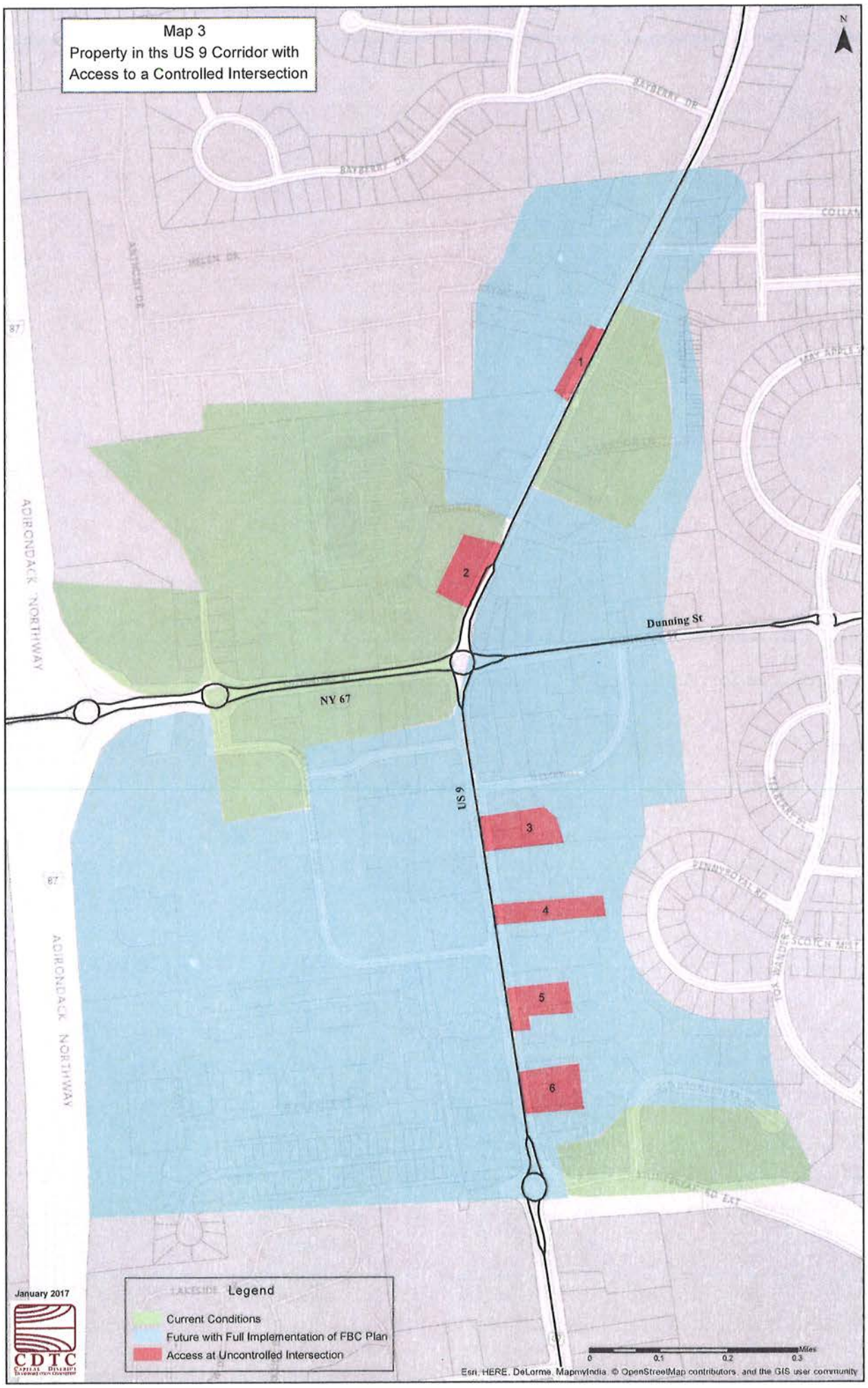
Successful private/public partnerships require both flexibility and a strong planning framework. CDTC's experience working with various municipalities in the region has proven high quality results can be achieved using this framework. A very good example of this is the Town of Colonie's Airport Area FGEIS where multiple projects have been designed using this framework. Managing access has been a critical objective of the GEIS – a CDTC review indicates that nearly 75 percent of all Wolf Road businesses have access to a controlled intersection, eliminating the need for more than 600 peak hour trips to travel Wolf Road.

Town of Malta planning initiatives have benefited the US 9 corridor as well. Currently, Map 3 shows roughly 35 percent of US 9 properties have access to either a controlled intersection or other street intersection. With implementation of the FBC access plan, roughly 75-80 percent of US 9 properties will have access to a controlled intersection. Achieving this level of access control will allow construction of a raised median through the corridor, while allowing excellent access to businesses and other property through a grid system of local streets. Creating common access for properties on the west side of US 9, north of the town complex, may not be possible without redevelopment. Areas like this will either require a break in access or opportunities for u-turns.

U-turn Considerations

A well-designed raised median is one of the most important tools to create a safe and efficient highway system, and is an integral component of a corridor that manages access and minimizes vehicle and pedestrian conflicts. However, median openings may be required from time-to-time to allow access to businesses or other property. The placement and design of median openings to provide direct full access to US 9 or to reverse direction is a key consideration in implementing the FBC complete street concept.

Based on a comprehensive review of the FBC access management plan for the US 9 corridor that included field visits and technical meetings, the Proposed General Plans show five locations were where


Map 3
Property in ths US 9 Corridor with
Access to a Controlled Intersection
N
BAYBERRY DR
ADIRONDACK NORTHWAY
87
Dunning St
NY 67
US 9
1
2
3
4
5
6
Legend
Current Conditions
Future with Full Implementation of FBC Plan
Access at Uncontrolled Intersection
January 2017
CDTC
0
0.1
0.2
0.3
Miles
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

median openings may be necessary in order to provide access to properties that probably will not have access to the local grid street system or controlled intersections, either through a median cut or u-turn.

Location 1: Sta. 38+00, Ambulance Corps south of Hemphill Place on the east side of US 9
Location 2: Sta. 43+00, Hemphill Place on the east side of US 9
Location 3: Sta. 63+00, bank located north of the NY 67 roundabout on the west side of US 9
Location 4: Sta. 68+50, Ellsworth Commons main entrance on the east side of US 9
Location 5: Sta. 71+50, Group of buildings at Raymond Drive on the west side of US 9

Rather than provide median cuts for each of these five locations, the study team recommends the following approach:

1. Use existing and planned roundabouts in the corridor to reverse direction on US 9. To make this work, additional roundabouts at Ellsworth Commons and Saratoga Village Boulevard that provide access to the local grid street system should be considered as project design moves forward.
2. Provide a median cut at the Ambulance Corps to allow full access to US 9. A specialized median treatment (contrasting texture/color) with a mountable curb is recommended, similar in design to the median cut on NY 67 that serves
3. If necessary, consider supplementing with 2-3 strategically located median breaks to allow u-turns for passenger vehicles and bicycles. Based on a review of AASHTO and other design guidance, providing u-turn treatment in the proposed reconfigured US 9 corridor may be difficult with the proposed geometry, but it is possible.[11]

[11] *NYSDOT Design Manual refers to the AASHTO Green Book for guidance on u-turn design treatment. Based on AASHTO and other State DOT practice, an 18-foot median plus a "flare" on the receiving roadway would be required in order to accommodate u-turns under proposed geometric conditions. However, an on-road field test on Wolf Road in the Town of Colonie suggests u-turns can be accommodated with a median as narrow as 12 feet (with parking prohibited on the receiving road). If this design treatment is pursued, a design exception would be required.*

CONCEPT-LEVEL ENGINEER'S ESTIMATE

A concept-level engineer's cost estimate was developed to assist in understanding the potential costs associated with implementing the proposed FBC section within corridor. The detailed cost estimate information is included in *Attachment F - Preliminary Cost Estimate*. The estimate ranges from $4.4 - $5.2 million, depending on which construction option is required.

Concept-Level Engineer's Estimate

Option	Concept -Level Estimate
Option 1: ▪ Box Widening of Route 9 within the project limits ▪ Landscaped raised median ▪ Pedestrian accommodations ▪ No full-depth reconstruction	$4,428,219
Option 2: ▪ Box Widening of Route 9 within the Transition Area limits ▪ Full-depth reconstruction of the Core Area ▪ Landscaped raised median ▪ Pedestrian accommodations	$5,159,698

Notes:

1. *Both options include costs for signage, pavement markings, drainage, and construction inspection. Costs do not include those related to completing a functional service road network, property connections, driveway consolidation, and other necessary arterial management treatments. For this analysis, the study team assumed that all access management treatments will be constructed by private developers as development continues in the corridor. Advancing median construction may require the public sector to step up and complete some or all of these improvements at an estimated cost ranging between $2-4 million. Landscaping could add another $0.5 million, depending on the contributions offered by the private sector.*
2. *Construction costs could be lower under certain conditions: (1) by modifying the design of certain complete street elements -- including buffered bike lanes instead of a cycle track, for example – could be less costly; (2) repurposing pavement through right-sizing would eliminate the need for strip-takings, and allow for more flexibility for other treatments; and (3) pursuing some or all of the work outside of the federal-aid design process to the extent possible, similar to recent construction of the parking lane in front of Ellsworth Commons*
3. *Depending on how the project is implemented, traffic management during construction could add up to another $1 million or so to the cost.*

PROJECT IMPLEMENTATION

This is a planning level assessment only. It provides guidance as to the extent proposed complete street elements can "fit" within the corridor with minimal disruption and right-of-way acquisition. It is not the final determination of exactly how a particular treatment is to be constructed. A detailed design effort that includes the collection of additional surveying data, engineering analysis, and environmental review are required before any physical changes to US 9 are made. The recent construction of the parking lane serving Ellsworth Commons occurred within the context of a previously approved design.

Reconfiguring US 9 in the downtown core area of the Town of Malta as a complete street will rely on a significant partnership between the public and private sector if it is to be implemented. Significant future federal and/or state participation in funding the project is unlikely, especially given the current uncertainty surrounding the future of the federal-aid program.

There may be opportunities to phase specific elements. However, any phasing would need to be carefully discussed with, and approved by, NYSDOT. Also, to appropriately phase any work, design of the full range of improvements would be necessary. The Town may also consider completing specific construction tasks to increase cost efficiencies. The Town of Bethlehem, for example, has successfully improved the walkability of the town by taking this approach for sidewalk and paving projects.

Overall, implementation will involve the following:

1. The Town will need to thoughtfully consider the findings of this study within the context of the community development goals set forth under the Town's adopted *Comprehensive Plan.* Reaffirmation of the complete street alternative recommended under the Form-Based Code Plan, or some variation thereof, must be made before the project moves forward.
2. The Town should continue discussions on the intent of this project with NYSDOT and CDTC. Some of the complete street treatments could be implemented within the context of a future pavement preservation project.
3. Once the scale and scope of complete street elements are confirmed, consideration should be given to pursuing an engineering study. The advantage of completing the engineering sooner rather than later is that it places the Town in a favorable position to compete for special capital funds either through New York State's Regional Economic Development Council (REDC) competition, USDOT's TIGER grant program, or other competitive programs. Competition for traditional federal program or State SDF funds would be a challenge.
4. Integrate the plan into the Town's adopted GEIS plan. Expected future development in the Town is estimated to generate roughly $1.5 million under the GEIS mitigation process.

ENVIRONMENTAL JUSTICE: UPDATE OF THE ANALYSIS PREPARED UNDER THE FORM-BASED CODE PLAN ADOPTED BY THE TOWN BOARD IN 2013

In accordance with Federal requirements, the Capital District Transportation Committee (CDTC) undertakes an analysis of Environmental Justice in all Community and Transportation Linkage Planning Program initiatives to evaluate the extent that transportation concepts and recommendations impact Environmental Justice populations. Impacts may be defined as those that are positive, negative and neutral as described in CDTC's Environmental Justice Analysis policy, adopted by CDTC's Policy Board in March 2014 (available at http://www.cdtcmpo.org/ej/ej.htm). The goal of this analysis is to ensure that both the positive and negative impacts of transportation planning conducted by CDTC and its member agencies are fairly distributed and that defined Environmental Justice populations do not bear disproportionately high and adverse effects.

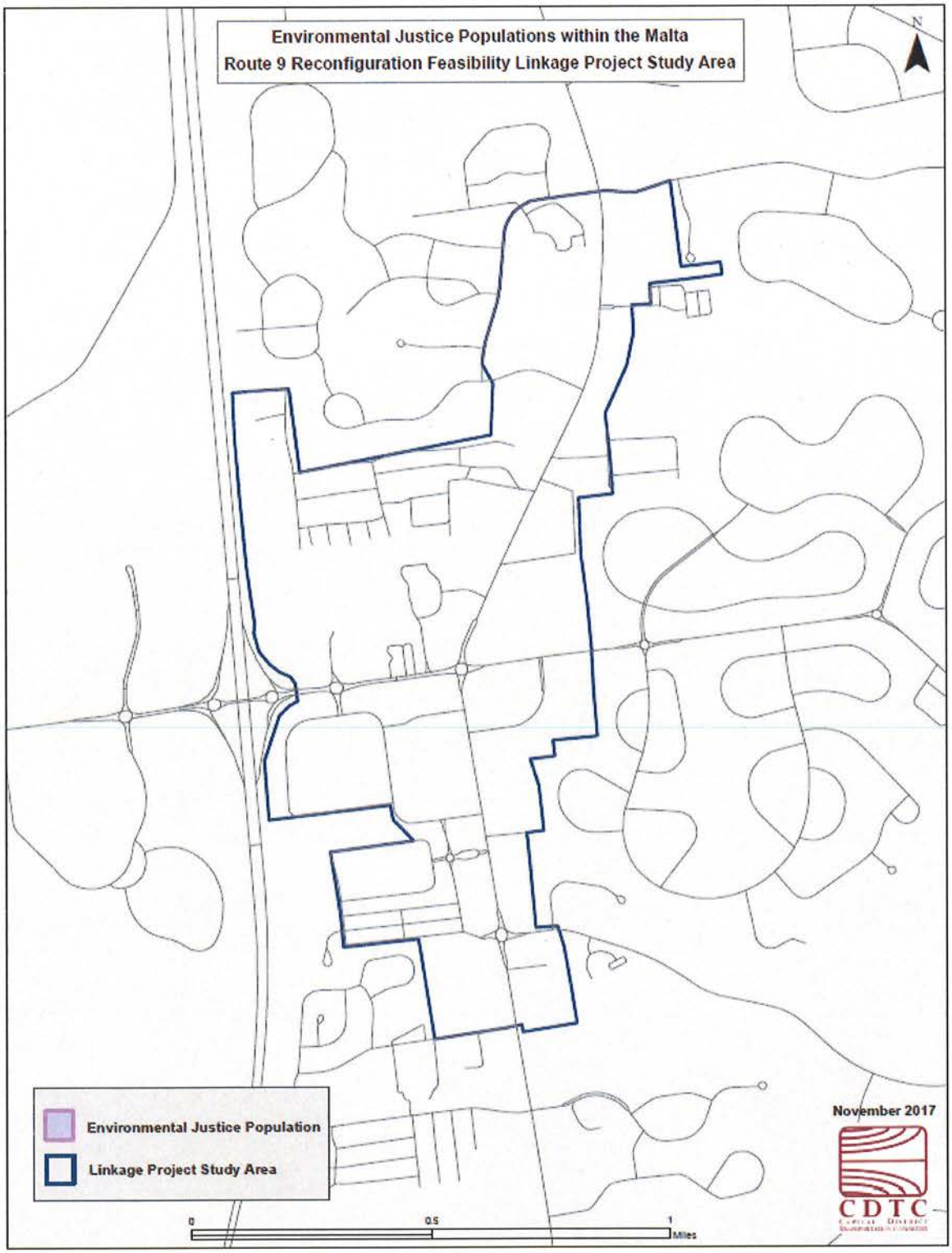
This goal has been set to:

- Ensure CDTC's compliance with Title VI of the Civil Rights Act of 1964, which states that "no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance,"
- Assist the United State Department of Transportation's agencies in complying with Executive Order 12898 stating, "Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."
- Address FTA C 4702.1B TITLE VI REQUIREMENTS AND GUIDELINES FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS, which includes requirements for MPOs that are some form of a recipient of FTA. CDTC does not receive capital funds but does receive planning funds.

Data and Analysis

In developing a methodology for analysis, CDTC staff created demographic parameters using Summary File 1 data from the 2010 United States Census as well as data from the 2007-2011 American Community Survey (ACS). Threshold values were assigned at the census tract level to identify geographic areas with significant populations of minority or low-income persons. As shown on Map 4 there are no tracts with higher than the regional average percentage of low-income or minority residents, classified as Environmental Justice populations, within the Malta Route 9 Reconfiguration Feasibility Linkage Project Study Area. Minority residents are defined as those who identify themselves as anything but white only, not Hispanic or Latino. Low-income residents are defined as those whose household income falls below the poverty line.

Map 4


Environmental Justice Populations within the Malta
Route 9 Reconfiguration Feasibility Linkage Project Study Area
N
Environmental Justice Population
Linkage Project Study Area
0
0.5
1
Miles
November 2017
CDTC

The transportation patterns of low-income and minority populations in CDTC's planning area are depicted in Table 1, using the commute to work as a proxy for all travel. The greatest absolute difference between the defined minority and non-minority population is in the Drive Alone and Transit categories: The non-minority population is 18 percent more likely to drive alone, slightly more likely to work at home, 10 percent less likely to take transit, and is also less likely to carpool, walk, or use some other method to commute. The greatest absolute difference between the defined low-income population and the non-low-income population follows the same trend, with the non-low-income population 21 percent more likely to drive alone and 12 percent less likely to commute via transit.

Table 1. Commute Mode 4-County NY Capital Region

By Race	Drive Alone	Carpool	Transit	Other	Walk	Work at Home
All Workers (16+)	80.0%	8.3%	3.2%	1.2%	3.6%	3.7%
White Alone Not Hispanic or Latino	82.5%	7.8%	1.8%	1.0%	2.9%	3.9%
Minority	**65.0%**	**11.0%**	**11.9%**	**2.1%**	**7.4%**	**2.6%**
By Income	Drive Alone	Carpool	Transit	Other	Walk	Work at Home
All Workers (16+) for whom poverty status is determined	80.7%	8.3%	3.2%	1.2%	3.0%	3.6%
At/Above 100% Poverty Level	81.7%	8.2%	2.6%	1.1%	2.8%	3.6%
Below 100% Poverty Level	**60.8%**	**10.2%**	**14.3%**	**3.1%**	**7.7%**	**3.9%**

Data: American Community Survey 2011 5-year estimates, tables B08105H + B08122. Other incl. taxi, motorcycle, bicycle.

The Malta Route 9 Reconfiguration Feasibility Linkage Project Study Area does not include nor is it adjacent to an Environmental Justice area based on Census Tracts having a higher than regional average percentage of minority and/or low-income residents. Two Malta Town Board presentations were made regarding the study and final products will be posted to CDTC's website and on social media.

CDTC defines plans and projects with a primary or significant focus on transit, bicycling, walking, or carpooling as being "positive". The purpose of the Malta Route 9 Reconfiguration Feasibility Linkage Project is to determine whether the desired complete street section included in the adopted Malta Form-Based Code Plan can be built within certain parameters and can function well (motor vehicle traffic level-of-service) over the 20-year life of the project. The Route 9 complete street section in the Malta Form-Based Code would create a more balanced transportation system along Route 9 to enable safe and comfortable ADA compliant access for users of all ages and abilities, including pedestrians, bicyclists and motor vehicle drivers, otherwise known as a Complete Street which will have a positive impact. The Study makes recommendations for roadway changes to improve the pedestrian and bicycling environment as well as to enhance safety for all users.

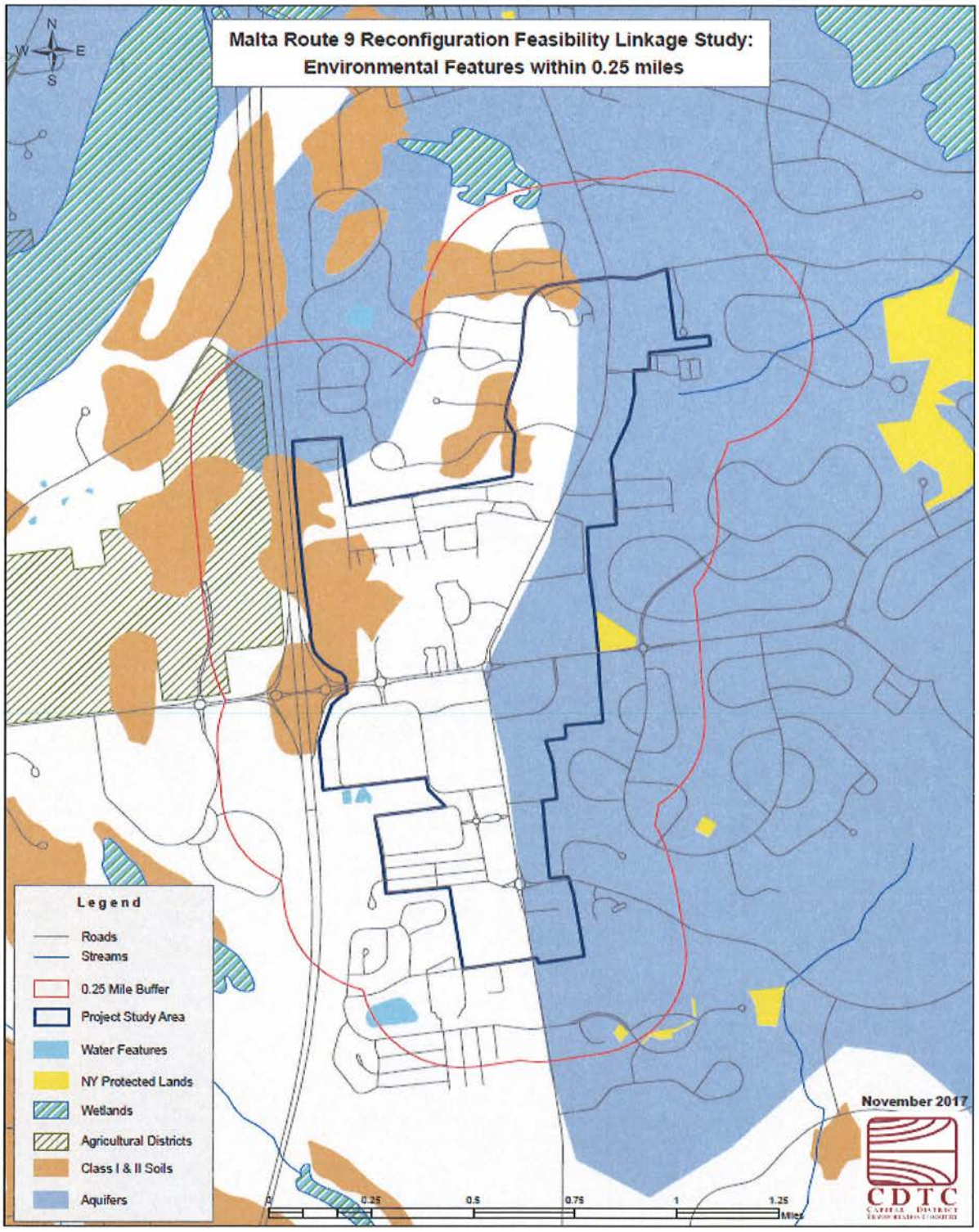
Environmental Features Scan

CDTC's New Visions 2040 regional transportation plan encourages smart growth as well as investment and development in urban areas as a method to protect natural resources. Smart growth policies also help to protect rural character and open space, and protect quality of life in the Capital Region. CDTC has undertaken review of natural and cultural resource mapping, and for the development of the Regional Transportation Plan consulted with federal, state and local agencies on environmental issues as an important part of the environmental mitigation process. Along with evaluating the impacts to environmental systems of candidate transportation projects for federal funds, CDTC documents the environmental systems present in the study areas for Linkage Program planning initiatives.
Map 2 provides an overview of the environmental systems present in the Malta Route 9 Reconfiguration Feasibility Linkage Project Study area. CDTC uses GIS mapping of the below environmental systems to screen for potential project impacts. Features within 0.25 miles of the study area are included in Map 2. The Malta Route 9 Reconfiguration Feasibility Linkage Project recommendations are not expected to impact any identified features since the study area is already developed.

Environment features include:

- sole source aquifers
- aquifers
- reservoirs
- water features (streams, lakes, rivers and ponds)
- wetlands
- watersheds
- 100 year flood plains
- rare animal populations
- rare plant populations
- significant ecological sites
- significant ecological communities
- state historic sites
- national historic sites
- national historic register districts
- national historic register properties
- federal parks and lands
- state parks and forests
- state unique areas
- state wildlife management areas
- county forests and preserves
- municipal parks and lands
- land trust sites
- NYS DEC lands
- Adirondack Park
- agricultural districts
- NY Protected Lands
- natural community habitats
- rare plant habitats
- Class I & II soils

MAP 5


Malta Route 9 Reconfiguration Feasibility Linkage Study:
Environmental Features within 0.25 miles
N
W
E
S
Legend
Roads
Streams
0.25 Mile Buffer
Project Study Area
Water Features
NY Protected Lands
Wetlands
Agricultural Districts
Class I & II Soils
Aquifers
0
0.25
0.5
0.75
1
1.25
Miles
November 2017
CDTC

ATTACHMENT A

ADOPTED PLANNING PRINCIPLES

PROPOSED PRINCIPLES THAT WILL HELP GUIDE DEVELOPMENT OF A COMPLETE STREET DESIGN FOR ROUTE 9 THROUGH THE DOWNTOWN AREA OF THE TOWN OF MALTA

Land use planning and day-to-day development decisions have a big role to play in building quality communities and efficient transportation systems. Where and how we plan and design the places we work, live, shop, and play can significantly affect a community's livability. A land use plan that promotes compact development, defines an appealing and coherent image of the community, and emphasizes connected streets, sidewalks, and convenient access to other modes play a critical role in cultivating a sense of place, and establishing economic development opportunities that include new office space, neighborhood stores, quality restaurants, and other services. Designing and building our neighborhoods to foster and accommodate multiple transportation modes directly influences mobility and accessibility, and enhances transportation-land use compatibility.

Committed to this land use goal, the Town of Malta completed and enacted a form-based code for its downtown area in 2013. The FBC created a core area along Route 9 where land use development would be more concentrated and compatible with new urbanist and smart growth principles. Although Route 9 is classified as a core street in the FBC, proposed land use development is unable to fully conform to FBC regulations because of the way Route 9 is presently configured and operates. The FBC developed rules to better integrate land use with transportation by encouraging development that will be compatible with a reconfigured Route 9 by using, for example, a grid network of streets to provide access at controlled intersections with Route 9. The FBC helps set the stage for the possible reconfiguration of US 9 from a higher-speed suburban highway to a complete street that is more in context with a hamlet or village setting.

The purpose of this study is to develop a feasible complete street concept for the core area of US 9, consistent with the following six planning and design principles:

1. **Transportation facilities are an integral part of a community.** When a road passes through a town, village, or city, it should be considered a "community street". All users, especially pedestrians and cyclists, including the elderly, disabled and children, should be given equal consideration. The pedestrian environment, for example, should not only include sidewalks, but also safe crossings at all signalized and unsignalized intersections throughout the corridor, and linkages between residential and retail areas. A well-designed transportation system can help promote economic activity and mobility, which in turn supports a healthy tax base. A sound tax base helps the Town provide the services that build a quality community.

2. **Reconfiguring US 9 should have minimal impact on its traffic-carrying capacity** . US 9 is a principal arterial serving as a commuter route for travelers within and outside the Town of Malta to jobs and activities elsewhere in the region, and also serves as a local route serving Town Hall, the town's community center, several office and retail centers, and many residential neighborhoods. Keeping traffic moving on Route 9 will therefore be an important consideration in any design.

3. **Transportation is not only about moving people and goods, but also about creating attractive and livable communities.** The town's adopted Downtown Plan and FBC Plan, and CDTC's New Visions Plan all call for making incremental improvements in the appearance of the Town's streetscape in conjunction with transportation improvements (and land development projects) in order to foster a positive image of the community. The planting of trees in the corridor, for example, will not only enhance community appearance, but will also help manage stormwater runoff and help slow traffic, making travel safer and more pleasant for residents and businesses.

4. **Integrating community and transportation facility design builds better communities and enhances quality of life.** Transportation projects that are designed to support and adhere to land use plans that promote compact development and emphasize connected streets, sidewalks, transit access, and human-scale design are critical elements in fostering a sense of place and community. The strong sense of community created by well-designed development and transportation projects has become increasingly important in the competitive marketplace.

5. **Safe facilities should be available for all modes of travel.** The reconfiguration of US 9 should encourage good driving behavior with speeds reduced and crosswalks respected. A safe and comfortable pedestrian and bicycle environment should be available throughout the corridor.

6. **Design flexibility and compromise are integral in creating quality projects.** Crafting a design that is acceptable to the community, implementers, and stakeholders requires a process that acknowledges the tradeoffs between competing goals, and embraces compromise and consensus.

7. **Funding is a significant constraint.** Agreeing to affordable treatments will be a challenge. Public/private partnership will be necessary in order to implement the plan.

ATTACHMENT B

TRANSPORTATION SYSTEM PROFILE

--ATTACHMENT B--

ADVANCING THE TOWN OF MALTA'S COMPREHENSIVE PLAN

FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA
OF THE TOWN OF MALTA AS A COMPLETE STREET

TRANSPORTATION SYSTEM PROFILE

The Town of Malta developed and enacted a form-based code (FBC) plan for its downtown area. The FBC was based on the adopted Downtown Plan, which amended the Town's Comprehensive Master Plan. The FBC created a "core area" along Route 9 where land development would be more concentrated and compatible with new urbanist and smart growth principles. Although US 9 is classified as a core street in the FBC, proposed land use development is unable to fully conform to FBC regulations because of the way the road is presently configured. The purpose of this study is to explore the feasibility of reconfiguring US 9 from a high-speed suburban highway to a feasible complete street concepts that is more in context with a hamlet or village setting. Compiling a definitive inventory of the existing street and highway system becomes a necessary first operational step in re-designing US 9 as a feasible complete street.

Profile Content & Purpose

Reliable, basic engineering and planning data, collected on a uniform, area-wide basis, are required for the analysis and formulation of sound transportation plans. Essential to the preparation of a complete street plan for the downtown corridor is an understanding of the configuration and functional classification of US 9, as well as of the average weekday and peak hour travel demand, vehicle operating speeds, intersection and mainline level-of-service, traffic crash history, driveway location and spacing, bicycle and pedestrian level-of-service, and transit accessibility. All of this information is necessary or helpful for the identification and mitigation of existing and future transportation deficiencies that may impact implementation of the Town's form-based code and complete street recommendations.

Jurisdictional and Functional Classification

Functional classification means grouping streets into categories according to the principal function served, ranging from a high degree of travel mobility and limited access to adjacent land use (expressway and arterial) to a very low degree of travel mobility and high access to land use (collector and local). US 9 through the Town of Malta is classified as a principal arterial and, as currently configured, is intended to expedite the movement of automobile, transit, and truck traffic. A secondary function is to provide access to abutting businesses and homes. The segment of US 9 considered in this study extends roughly 1.8 miles between Cramer Road and Knabner Road, but focuses on the 0.6 miles

study extends roughly 1.8 miles between Cramer Road and Knabner Road, but focuses on the 0.6 miles between the north end of Ellsworth Commons and Saratoga Village Boulevard where conflict between land-use and street function is more likely to occur.

As a principal arterial, US 9 is on the federal-aid system and, as such, is eligible to compete for and receive federal funds to offset all or part of the cost of transportation-related projects. As a National Highway System (NHS) route, design standards are established by FHWA, but some flexibility can be considered in order to deliver projects that "fit" community context. Because New York State has designated the portion of US 9 that overlaps NY 67 as a Qualifying and Access Highway, some design requirements, like lane width, may not be flexible.

The jurisdictional classification of a roadway indicates which agency of government has the primary responsibility for the design, construction, operation, and maintenance of the facility. US 9 is owned by the New York State Department of Transportation. Although, maintenance and operation of the facility is a State responsibility, the Town of Malta can suggest improvements to the road. However, approval of the NYSDOT is required prior to undertaking any action altering the use, capacity, or configuration of the highway. Such actions requiring approval include, but are not limited to, implementation of rules restricting turn movements, installing or modifying traffic control devices, changing speed limits, and changing roadway geometrics.

Physical Characteristics of US Route 9

The physical characteristics of US 9 and connecting roads affect the volume of traffic that can be efficiently served, and the ability of transit users, pedestrians, and cyclists to safely and comfortably move through the corridor.

The segment of US 9 between Cramer Road and Knabner Road is constructed to a rural-type cros-section with open drainage. Pavement width totals roughly 76 feet, adequate to provide four twelve-foot travel lanes, two eight-foot shoulders, and a 12-foot center turn lane. The presence of paved continuous shoulders provides a very good riding surface for bicyclists. It appears that there is sufficient pavement width to accommodate various complete street treatments.

In the segment concerned, the pavement condition is in very good condition. According to NYSDOT's 2014 Pavement Data Report, pavement in the corridor has been rated 7. There is no visible or reported distress that would require reconstruction of the pavement in the short-term.

Within the study area, US 9 is intersected by nine public and private streets and ways, and roughly 54 driveways. There are three "controlled" intersections -- two roundabouts and one signalized intersection.

Traffic Volume

Among the more important data used to quantify demand on the transportation system are vehicular traffic counts. Current traffic counts provide a measure of the utilization of the arterial street system within the community. Analyses of traffic count data on a daily and hourly basis can provide important insights on the demand for travel within a community, and are essential to a determination of the effectiveness of the existing street system in meeting the community demand for travel.

Current and historic traffic volumes for US 9 in the study area are summarized in Figure 1. On an average weekday in 2015, US 9 carried about 16,000 vehicles per day between Knabner Road and Dunning Street. North of the NY 67 roundabout (near Ellsworth Commons and Town Offices), traffic is heavier, with average daily traffic demand approaching 18,000 vehicles per day. As shown in Figure 1, traffic growth south of NY 67 roundabout has been modest, growing by about 26 percent between 1990 and 2015. By comparison, traffic north of the NY 67 roundabout has grown by more than 34 percent since 1990. Quite a bit of this growth has been related to Global Foundry development.

Truck volumes in the corridor total between 900 and 1,000 vehicles per day, generally averaging about six percent of US 9 traffic. Truck traffic has grown about 26 percent since 1990.

Figures 2 through 7 show the hourly distribution of traffic for an average weekday at various locations in the corridor. Hourly demand in the early morning hours between 12 a.m. and 6:00 a.m. are very low, with each hour constituting less than one percent of the average weekday traffic volume. After 6:00 a.m., hourly volumes increase rapidly to an early morning peak hour between 7:00 a.m. and 8:00 a.m., constituting about nine percent of average weekday traffic volume. Traffic demand then declines slightly for the next few hours, and then rises to the daily peak of 11 percent of the average weekday demand between 5:00 p.m. and 6:00 p.m. Traffic volume then declines steadily each hour to the end of the day.

The pattern shown by the hourly distribution of traffic occurs as a result of work-related trips being made during the morning peak traffic hour of 7:00 a.m. to 8:00 a.m.; shopping,social recreation, and personal business trips made during the midday; and a combination of these trip types being made during the afternoon peak hour of 5:00 p.m. to 6:00 p.m. This pattern is typical of arterial facilities in the Capital District. The evening peak travel period is of primary concern because this is when traffic volumes are the greatest and have the most impact on congestion.

Figure 8 shows the turning movement volumes at each major intersection in the corridor. These peak hour counts were extracted from the Town's GEIS and the Saratoga County Regional Traffic Study.

Forecast Future Traffic Conditions

CDTC evaluated the impacts of continued planned development in the corridor using CDTC's STEP Model. The Systematic Traffic Evaluation and Planning (STEP) Model is a travel demand model which utilizes VISUM software. The simulation of travel is based on the premise that the magnitude and pattern of travel is a stable function of the characteristics of the land use pattern and of the transportation system. In travel simulation modeling, those aspects of land use development and of the regional transportation system demand are identified, quantified, and correlated with travel through the analysis of origin-destination, land use, and transportation system data.

It has been demonstrated that the relationships among land use, the transportation system, and attendant travel remain reasonably stable over time. Thus the future distribution and intensity of land use activity is the major factor influencing future traffic patterns. With an understanding of this relationship, a transportation plan can be developed which would not only serve existing traffic patterns in the area, but which would also serve the new pattern that would evolve with changing development.

CDTC staff developed a corridor version of CDTC's STEP model for use in evaluating future traffic conditions in the Town of Malta. The Town and corridor versions of the model are based on the county-

wide model CDTC developed and used for the Saratoga County Regional Traffic Study. The Malta version of the model includes 17 traffic analysis zones representing the entire town, including nine zones within the US 9 corridor study area. The STEP model generates traffic forecasts for the PM peak hour, generally the critical design period for highway facilities, using the land use plans developed under *Malta's Town-Wide Generic Environmental Impact Statement* and the *Saratoga County Regional Traffic Study.* Calibration of the model

A Note About Expected Development and Traffic

As mentioned, the Town and County recently completed two separate studies which is the basis for the traffic analysis in this study. Both of those study efforts confirmed that development in the Town will continue at a modest pace. Over the next 10-20 years, an additional 1,940 single family, townhome, and apartment units are expected, representing a 27 percent increase over existing households. Commercial development – office, retail, and service – will remain fairly strong, adding another 1.4 million square feet of leasable space. Most of this development will be centered in the Town's Route 9 and Route 67 corridors. If fully developed, the land use patterns represented in this planned development scenario would be expected to generate about 3,800 new vehicle trips during the PM peak hour. The distribution of this traffic is shown on Figures 2-7. Intersection demand is shown on Figure 9.

Existing and Future Traffic Conditions

A study of capacity and delay is important in determining the ability of a specific roadway or intersection to accommodate traffic under various land use conditions. Intersection and mainline roadway operation can be characterized by Level-of-Service (LOS) which is a measure of the quality of traffic flow, and volume-to-capacity (v/c), which is a measure of the quantity of traffic flow. Level of service is a traffic engineering term used to indicate the extent traffic must stop and wait prior to proceeding through an intersection. Volume-to-capacity ration measures the amount of roadway or intersection capacity consumed by traffic.

Intersections

The Highway Capacity Manual defines signalized intersection LOS in terms of average delay per vehicle, and describes LOS with grades A through F. LOS A has a very low average stopped delay (less than 10 seconds per vehicle), while intersections operating under LOS F conditions experience very high average stopped delay (greater than 80 seconds per vehicle). Intersection delay is based upon several factors including approach volume, lane geometry, traffic control, truck volume, and several other factors. Average intersection delay, defined as the amount of time a typical vehicle must stop and wait at an intersection, is used to determine the LOS provided by the intersection.

For unsignalized intersections, the analysis considers the operation of all traffic entering the intersection, but the LOS is only calculated for the minor movements. The unsignalized analysis calculates the delay of minor movements, typically the side street movements or left-turn movements from the major street.

Accepted engineering practice also recommends that the v/c ratio not exceed a value of 1.0 during the peak travel hours. A v/c ratio close to 1.0 indicates that an intersection is approaching saturation (ability

to process traffic that desires to travel through it). At signalized intersections, higher delay can be related to signal timing or phasing issues related to various turn movements, not just the amount of traffic.

Under CDTC's adopted Congestion Management System, LOS D is identified as desirable for overall intersection performance, and LOS E is identified as acceptable for individual movements within the intersection. CDTC's process also permit LOS F conditions under certain conditions, especially when community context makes it inappropriate to widen or add lanes.

For this study, the study team relied on work previously completed by Chazen for the Town's GEIS and CME for the Saratoga County Study. Figure 8 shows that all intersections along the corridor work very well under existing traffic conditions. Long-term, Figure 9 shows that intersections work fairly well except for the intersection of US 9 and Malta Avenue. Capacity and LOS deficiencies are mitigated under proposed actions included in the Town's GEIS.

Mid-block Locations

In terms of mainline or corridor level-of-service, US 9 has maintained a high level-of-service related to mid-block capacity thresholds that compare the number of travel lanes with the estimated amount of daily traffic as shown on Figures 2-7. Mainline traffic conditions were evaluated by using guidelines reported in CDTC's Congestion Management System for regional and corridor planning work. Mainline highway capacity deficiencies are identified by comparing mid-block traffic demand against estimated mid-block capacities. As shown in Figures 2-7, US 9 in the study area operates well throughout the day with demand well-below the capacity threshold of the roadway. In general, results show that there is some potential for right-sizing the corridor

Vehicular Traffic, Land Use, Access and Driveways

The roadway network of a community is defined in terms of street hierarchy. This hierarchy describes the principal use and intended function of each road. Under the functional classification system, arterial streets, like US 9, serve the through movement of traffic between communities. Local streets provide access to abutting land, such as residential neighborhoods, office buildings, or retail stores. Collector streets funnel traffic between the two, and usually serve a secondary land access function. When a street begins to serve more than its principal function, conflicts can occur.

One type of conflict that occurs along US 9 – a principal arterial – involves access with commercially-generated traffic. Frequent or closely-spaced curb cuts and resulting driveway turn movements interrupt traffic flow. As conflict between the primary function of a roadway as a conveyor of traffic and access to adjoining parcels increase, congestion and traffic conflict follow. This undesirable situation also limits the suitability of arterials for use by pedestrians, bicyclists, and transit users. Where problems either exist or are emerging, improperly placing too many more driveways could threaten the operational integrity of the corridor. A large degree of conflict an also make it more difficult to implement certain complete street treatments.

To measure the conflict in the US 9 corridor, the study team evaluated the "Level-of-Compatibility" on a scale of A to F. The LOC ratings compare the number and spacing between commercial driveways along the roadway to its traffic volume – the more frequent the number of driveways and the higher the

traffic volume, the worse the rating. This comparison provides a measure of arterial function in terms of potential conflict between through traffic and vehicles turning into and out of adjacent driveways. A level-of-compatibility of C or better indicates that the interplay between driveway access and through traffic is minimal. Ratings from D to F indicate that there is probably frequent conflict which often negatively affects traffic flow and increased traffic conflict and crashes, and makes walking and cycling very difficult.

There are approximately 62 residential and commercial driveways and intersections within the study area. Maps 1-9 show a graphic displaying driveway and intersection locations, land use, type of access control for each driveway in the corridor, and level-of-compatibility for each section of roadway in the corridor. It is clear that there are significant conflicts that line US 9. Determining the extent to which curb cuts and the resultant level of traffic entering and exiting the street can have important implications for the environment of a town center, since these vehicles also have the potential tio conflict with pedestrians. This type of conflict could impact the walkability of the corridor, and affect the overall safety of the town's residents. The Town has already taken the first steps toward limiting or eliminating driveways by connecting properties and by developing a functional service road network. A functional service road network will divert local traffic from US 9 and will make it easier and safer to make left turns at controlled intersections.

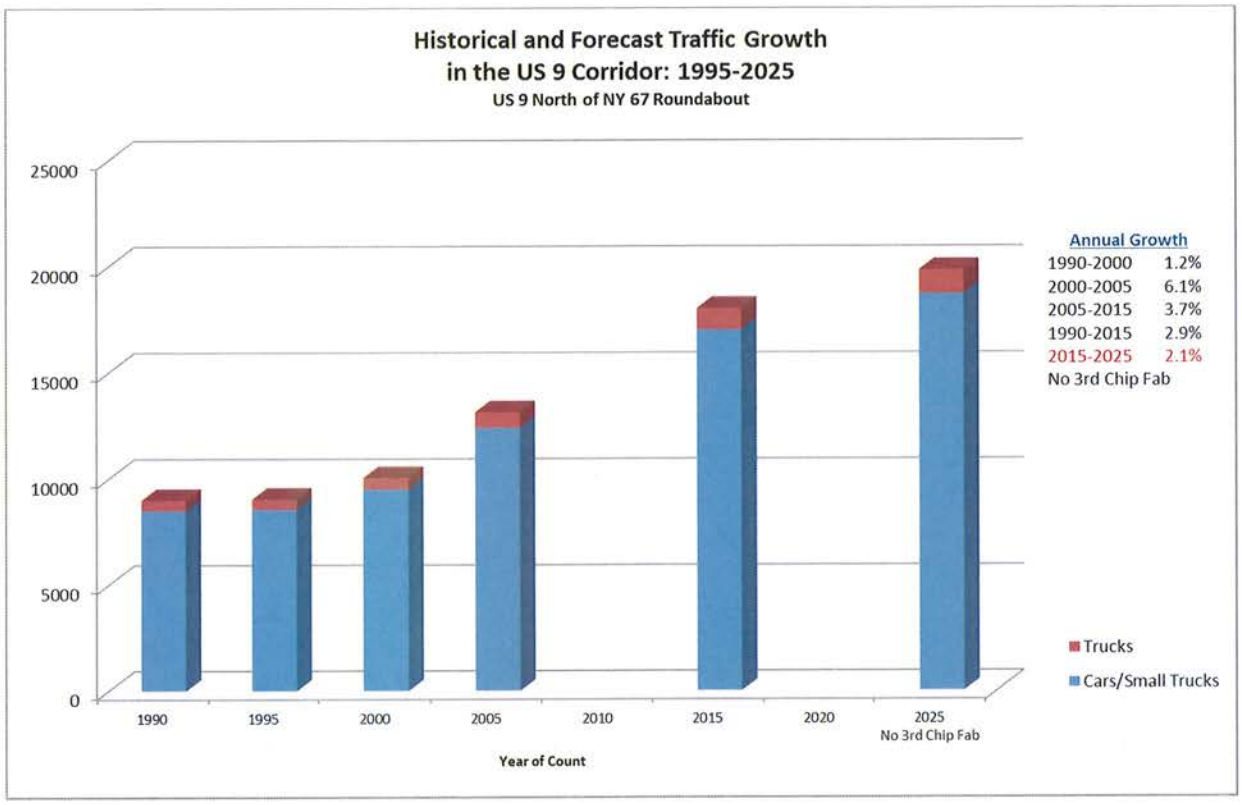
Bicycle Level of Service (BLOS)

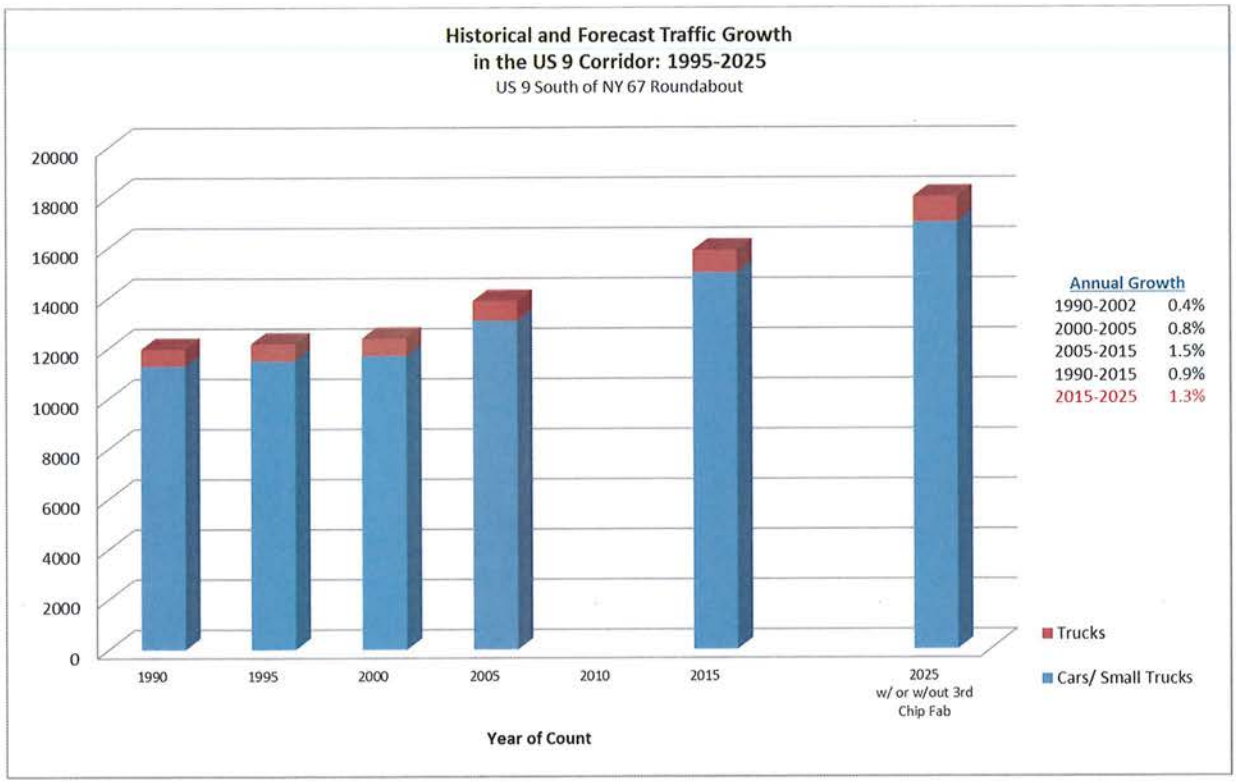
The level-of-service for bicycle travel within the study area was estimate for US 9. This measure is based on perceived safety and comfort with respect to motor vehicle traffic while traveling along a roadway, and is useful for evaluating bicycle conditions in a shared roadway environment. The 2010 Highway Capacity manual includes a bicycle-level-of service (BLOS) measure adapted from the version of the model developed by Bruce Landis, and reported in a report prepared for the Transportation Research Board. Various roadway characteristics including travel lane and shoulder widths, vehicle speed, traffic volume, heavy truck volume, and pavement condition are used to calculate a BLOS score for adult cyclists. The results are scored in terms of a letter grade from "A" to "F", with F representing a roadway with the highest level of discomfort and perceived cycling danger.

For US 9, there are no facilities specifically oriented towards bicycle travel. Because the roadway itself has wide paved shoulders that can legally be used by bicyclists and relatively low traffic volume, the calculated BLOS for US 9 is actually fairly good for experienced adult cyclists.

Vehicle Operating Speed
Corridor Walkability
Transit Services
Travel Patterns
Safety

Figure 1: Historical and Forecast Traffic Growth in US 9 corridor





Figures 2 - 7: Profile Location Map

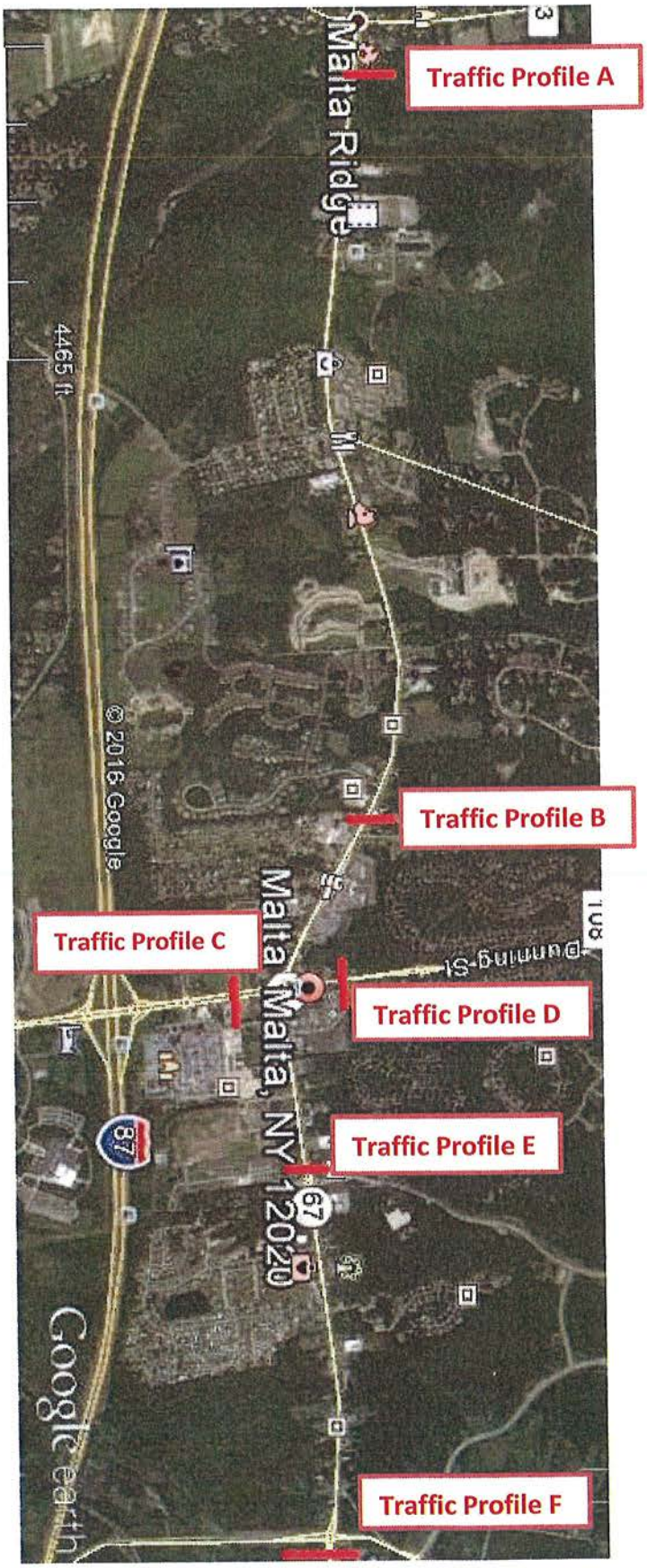


Figure 2: Traffic Profile A

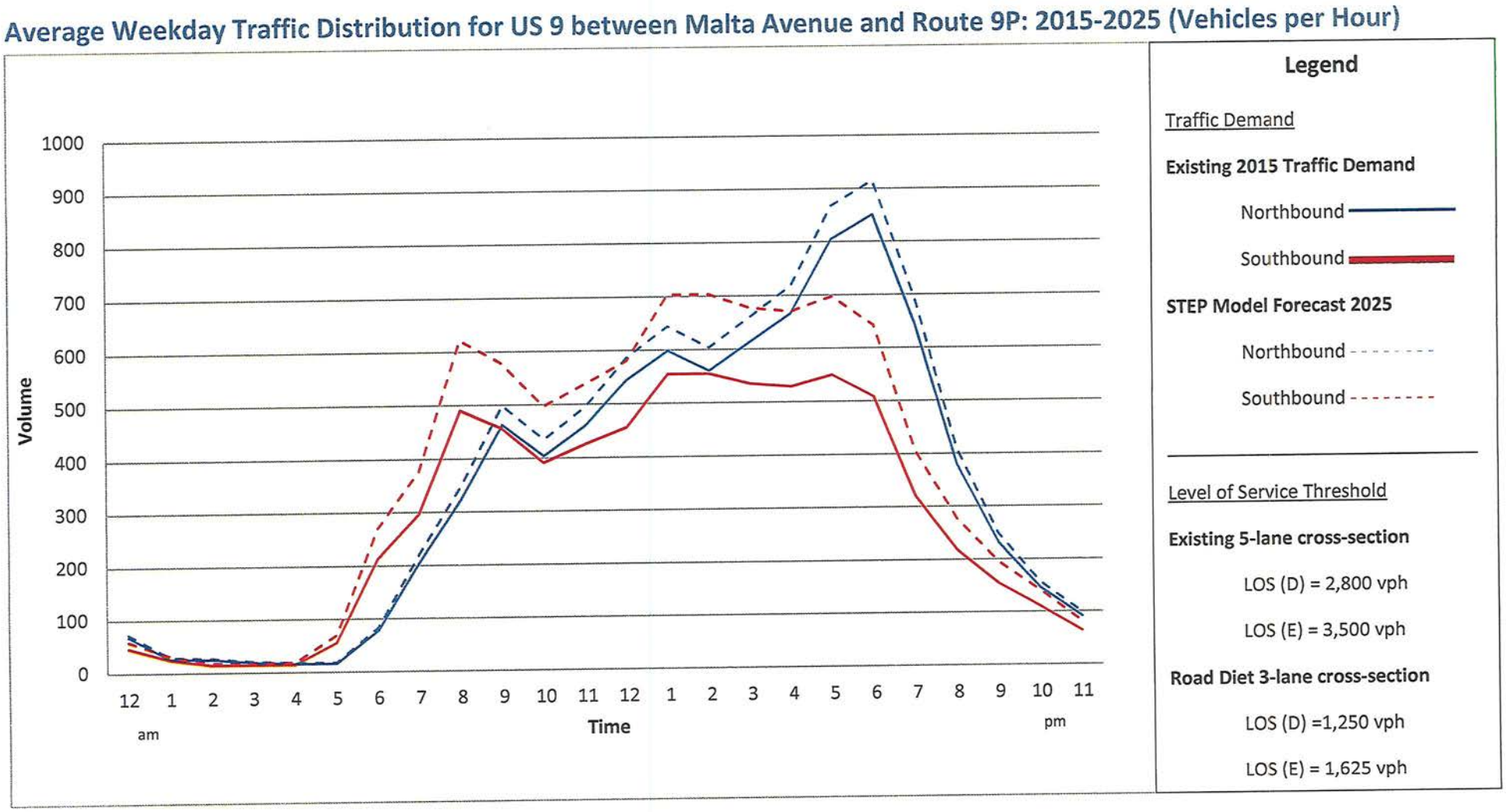


Figure 3: Traffic Profile B

Average Weekday Traffic Distribution for US 9 between NY 67 Roundabout and Ellsworth Commons: 2015-2025 (Vehicles per Hour)

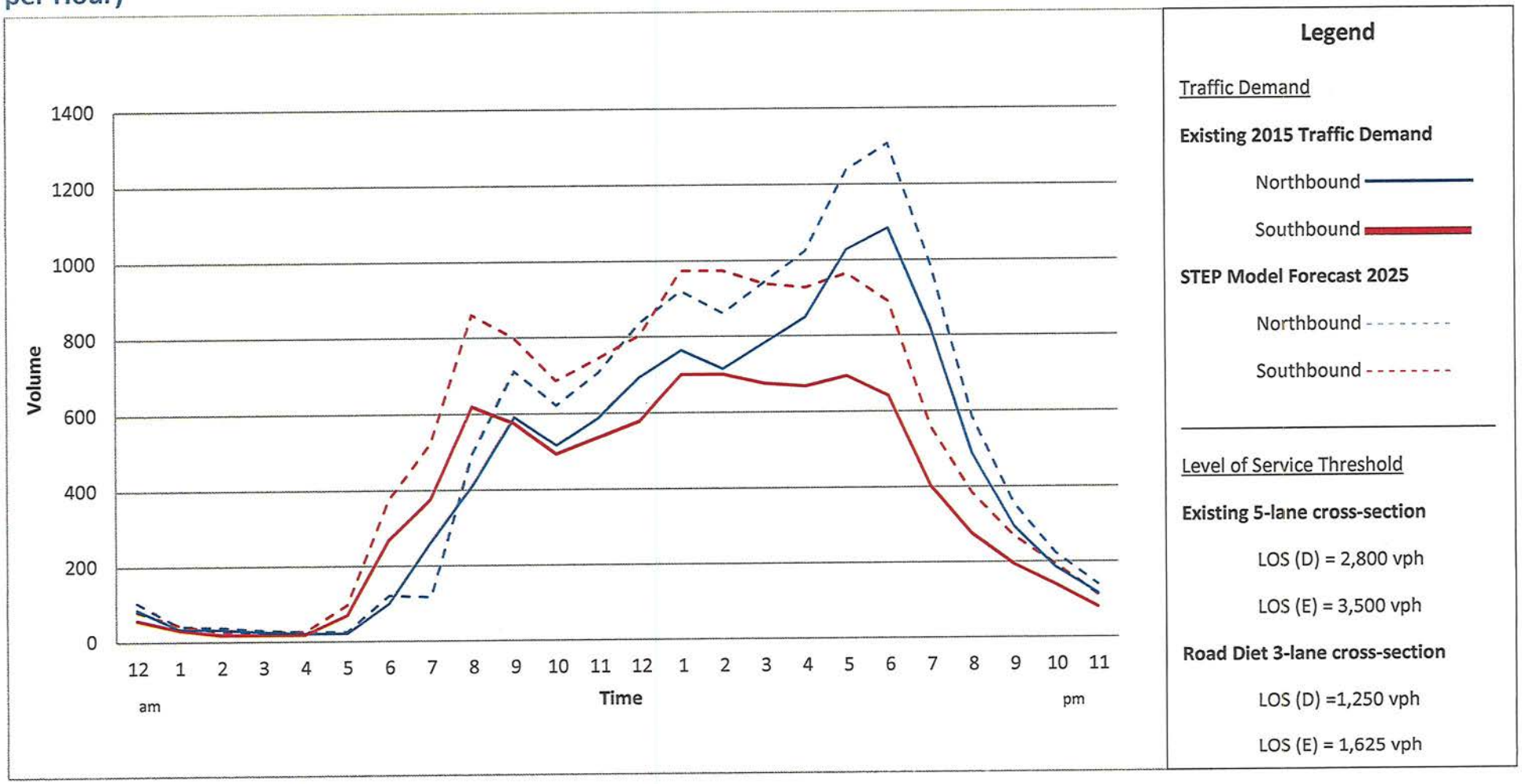


Figure 4: Traffic Profile C

Average Weekday Traffic Distribution for NY 67 between US 9 Roundabout and Kelch Drive Roundabout: 2015-2025 (Vehicles per Hour)

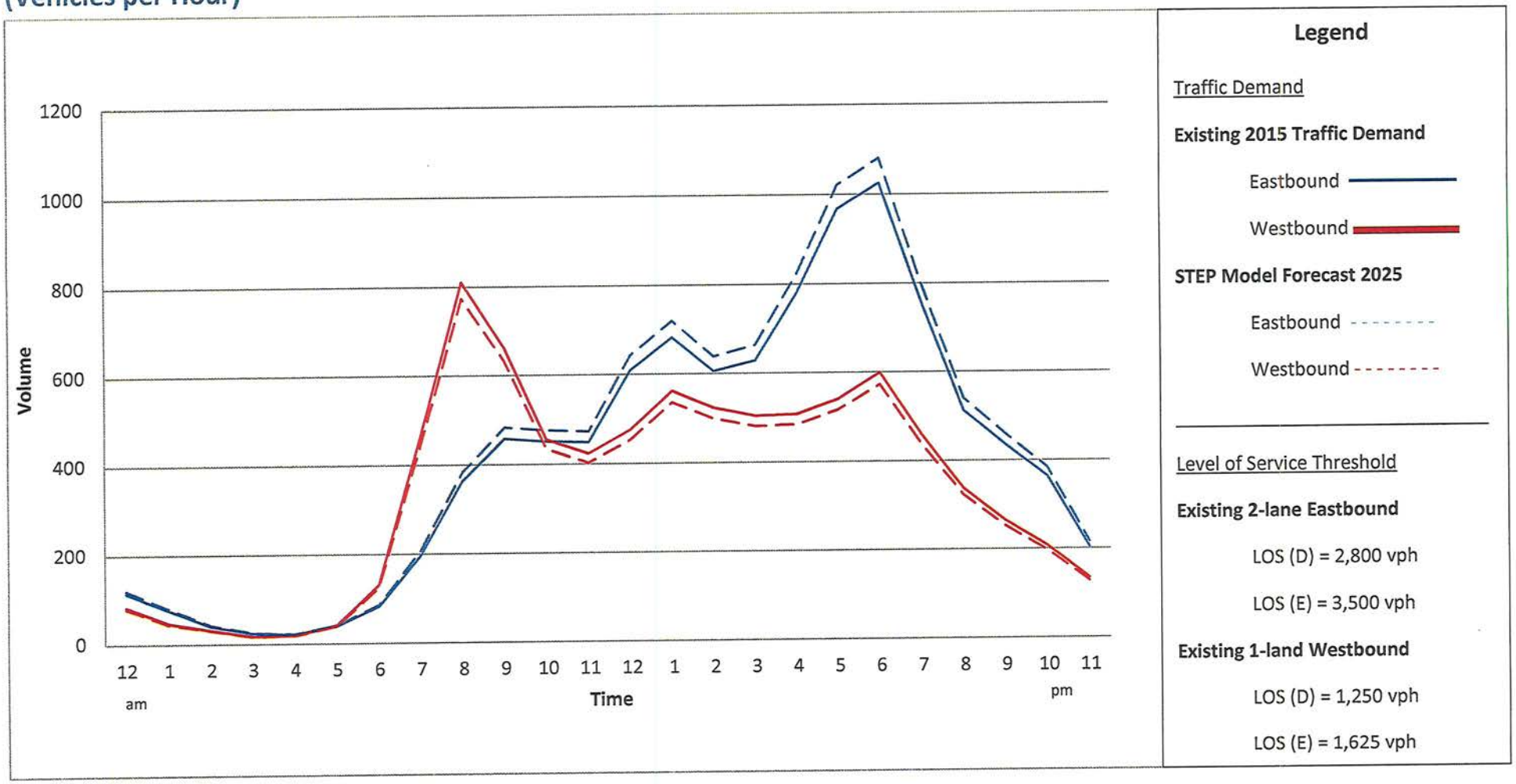


Figure 5: Traffic Profile D

Average Weekday Traffic Distribution NY 67 between US 9 Roundabout and Fox Wander Road Roundabout: 2015-2025 (Vehicles per Hour)

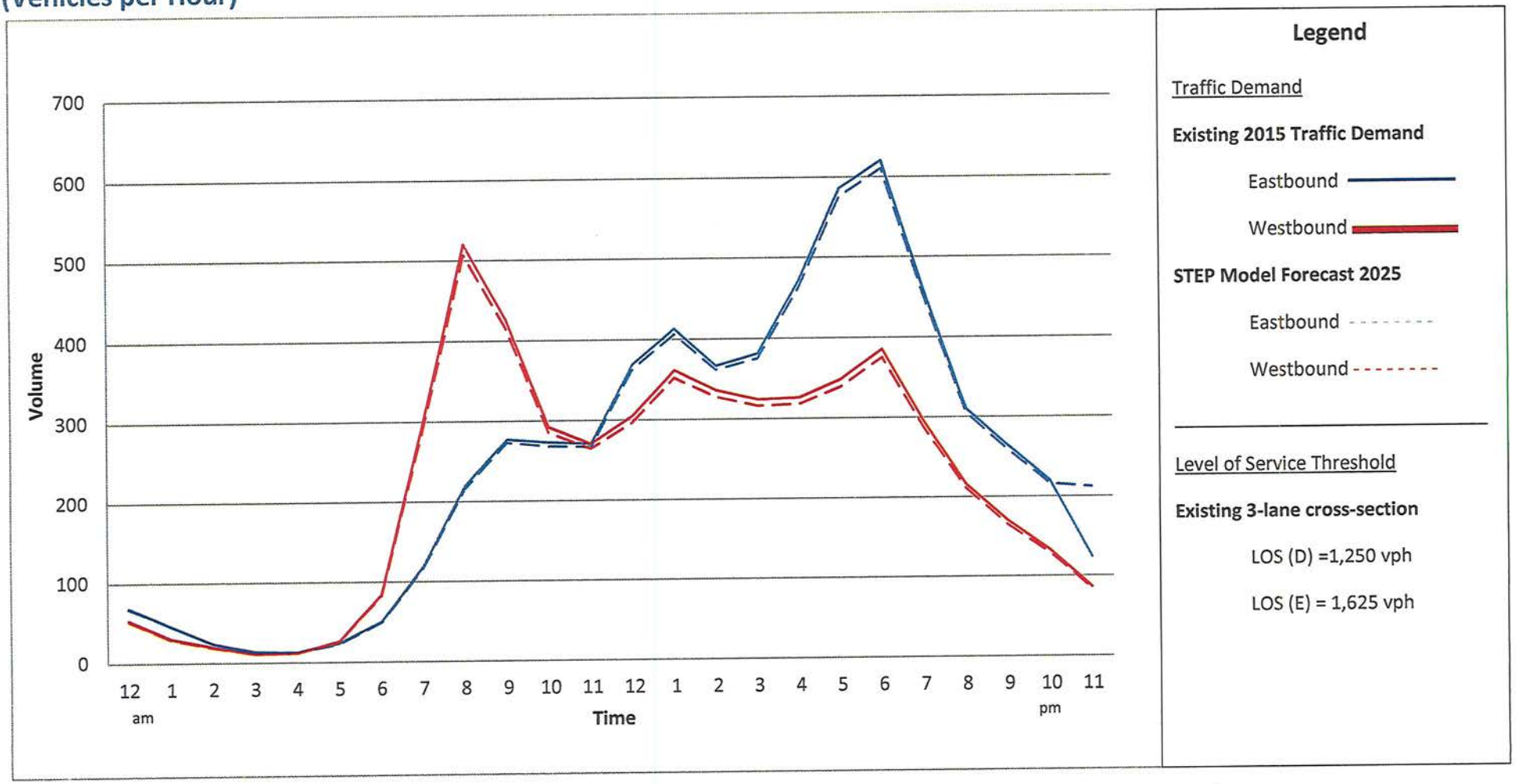


Figure 6: Traffic Profile E

Average Weekday Traffic Distribution for US 9 between Stonebreak road roundabout and Saratoga Village Blvd: 2015-2025 (Vehicles per Hour)

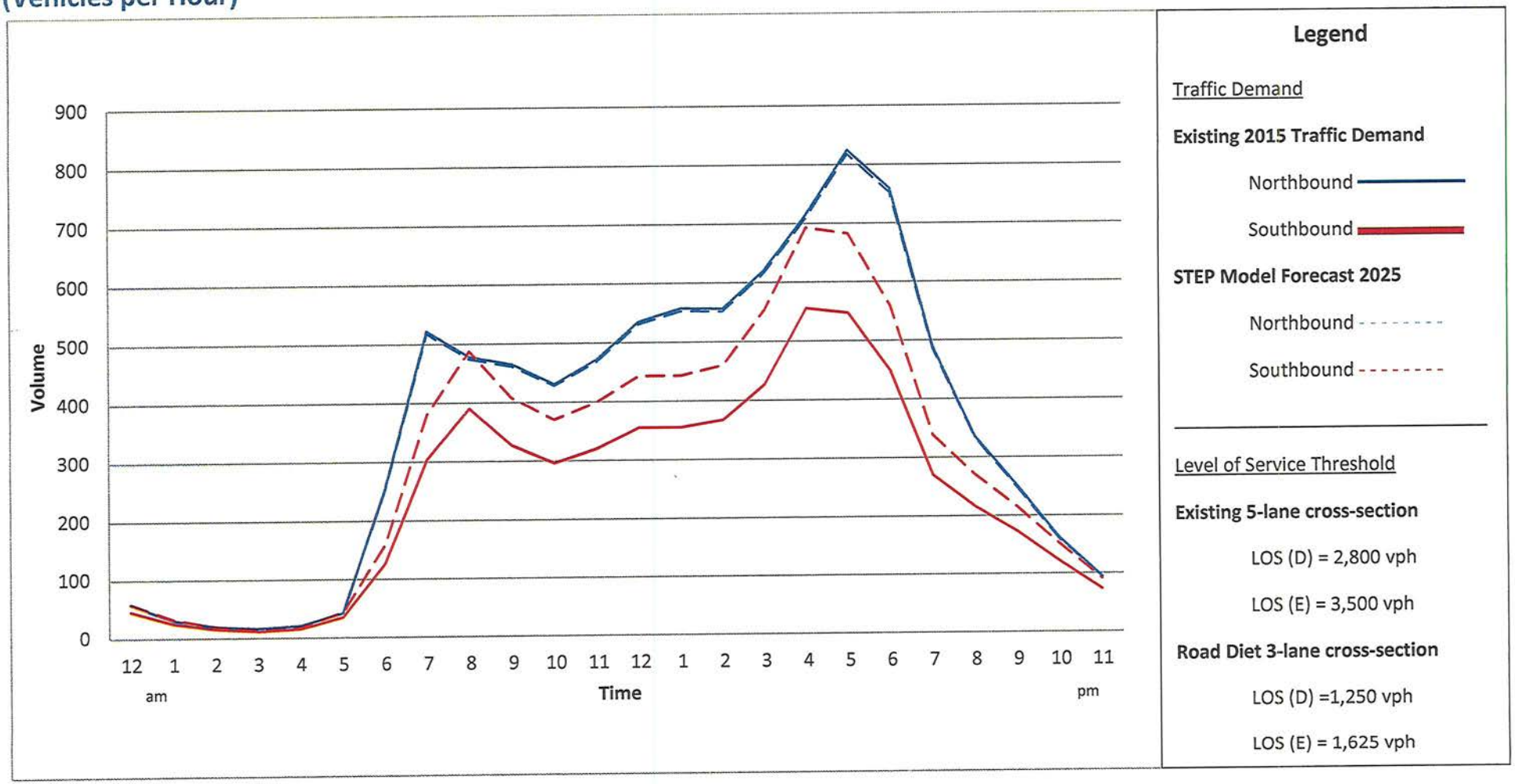


Figure 7: Traffic Profile F

Average Weekday Traffic Distribution for US 9 between Round Lake Bypass and Goldfoot Road: 2015-2025 (Vehicles per Hour)

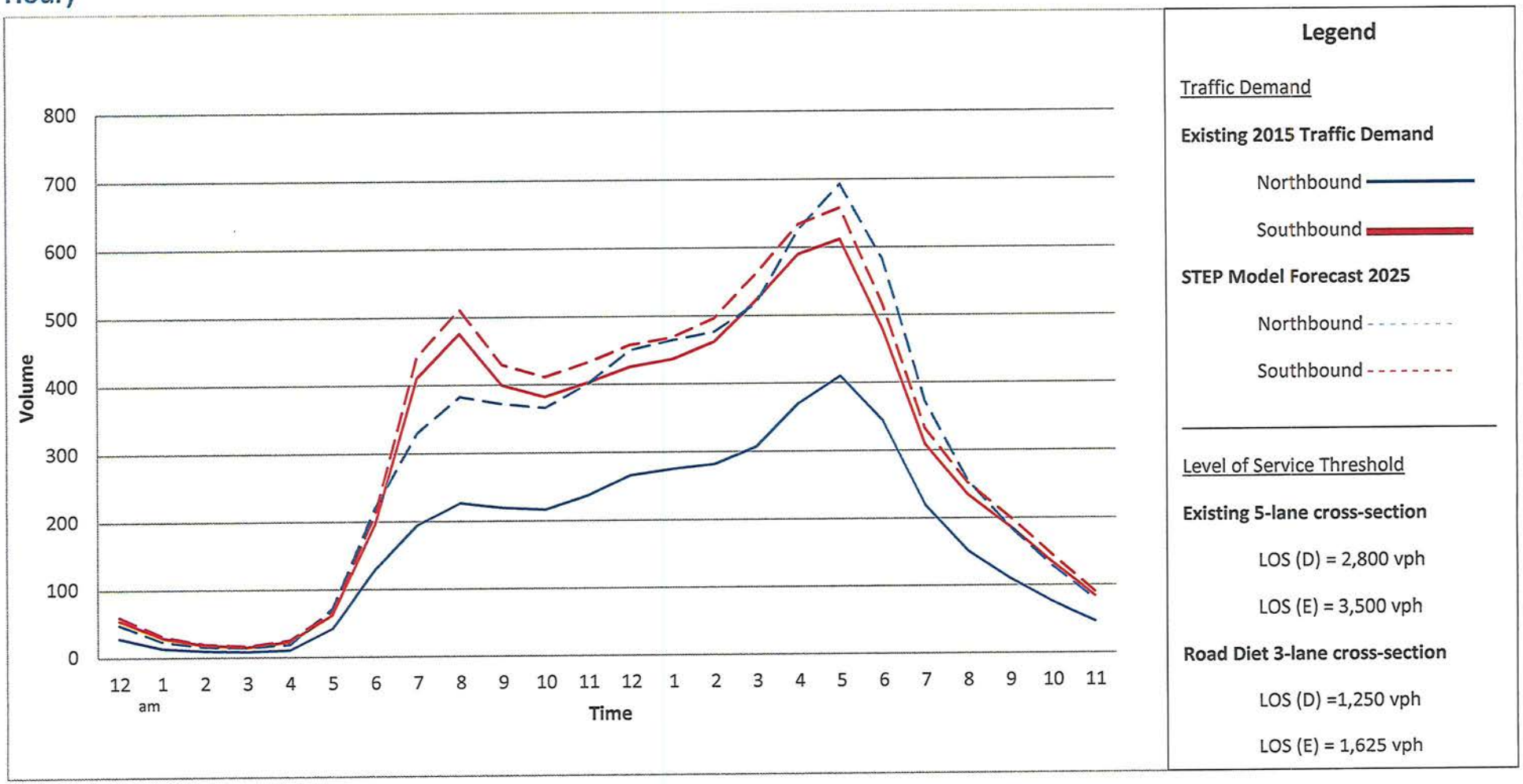
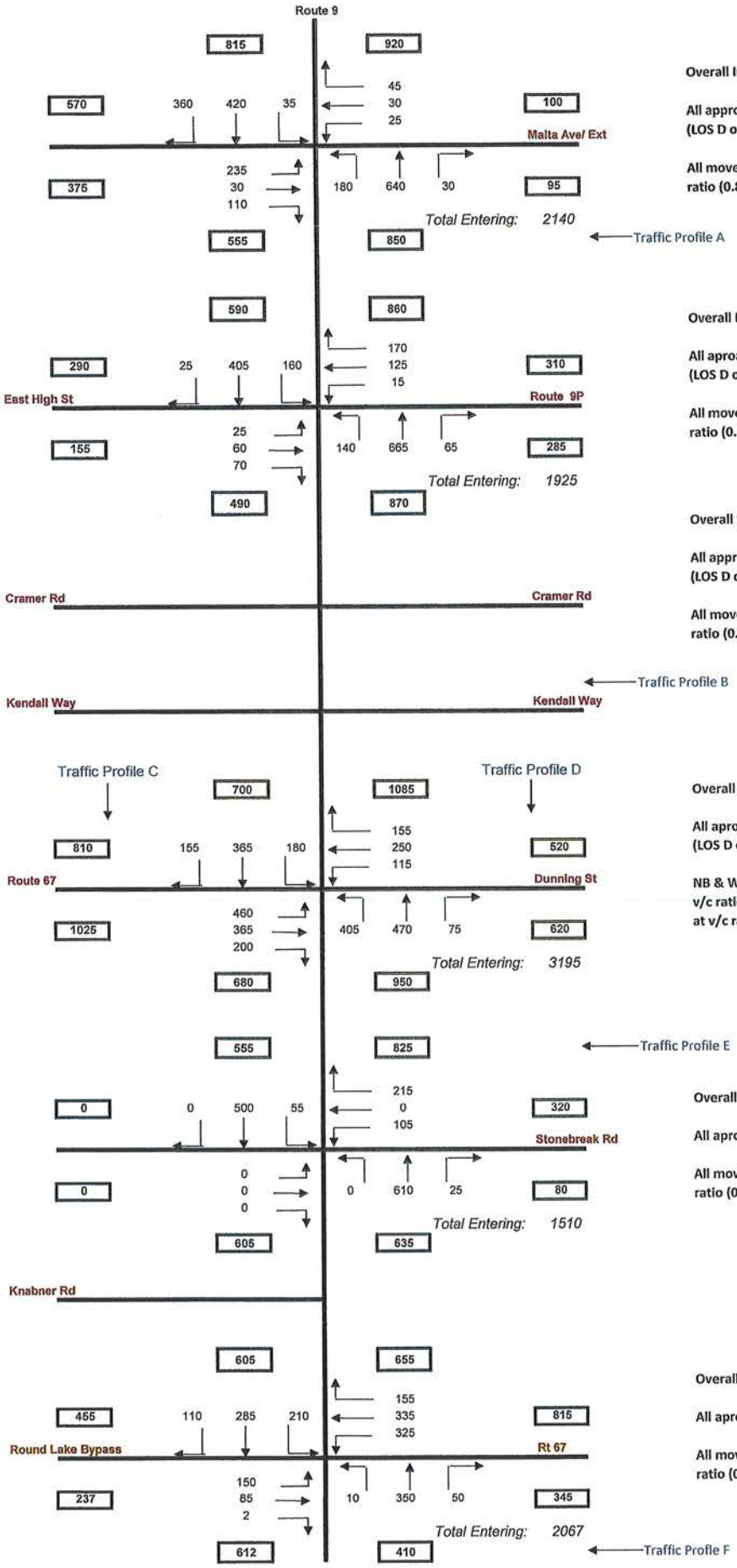


Figure 8: Existing (2015) Traffic Condition



Overall Intersection LOS = C

All approaches operate at acceptable LOS (LOS D or better)

All movements operate at acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = B

All aproaches operate at acceptable LOS (LOS D or better)

All movemenrs operate at acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = B

All approaches operate at acceptable LOS (LOS D or better)

All movement operate at acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = C

All aproaches operate at acceptable LOS (LOS D or better)

NB & WB movements operate at acceptable v/c ratio (0.85 or lower), SB & EB operates at v/c ratio of 0.87 & 0.91, respectively

Overall Intersection LOS = A

All aproaches operate at acceptable LOS A

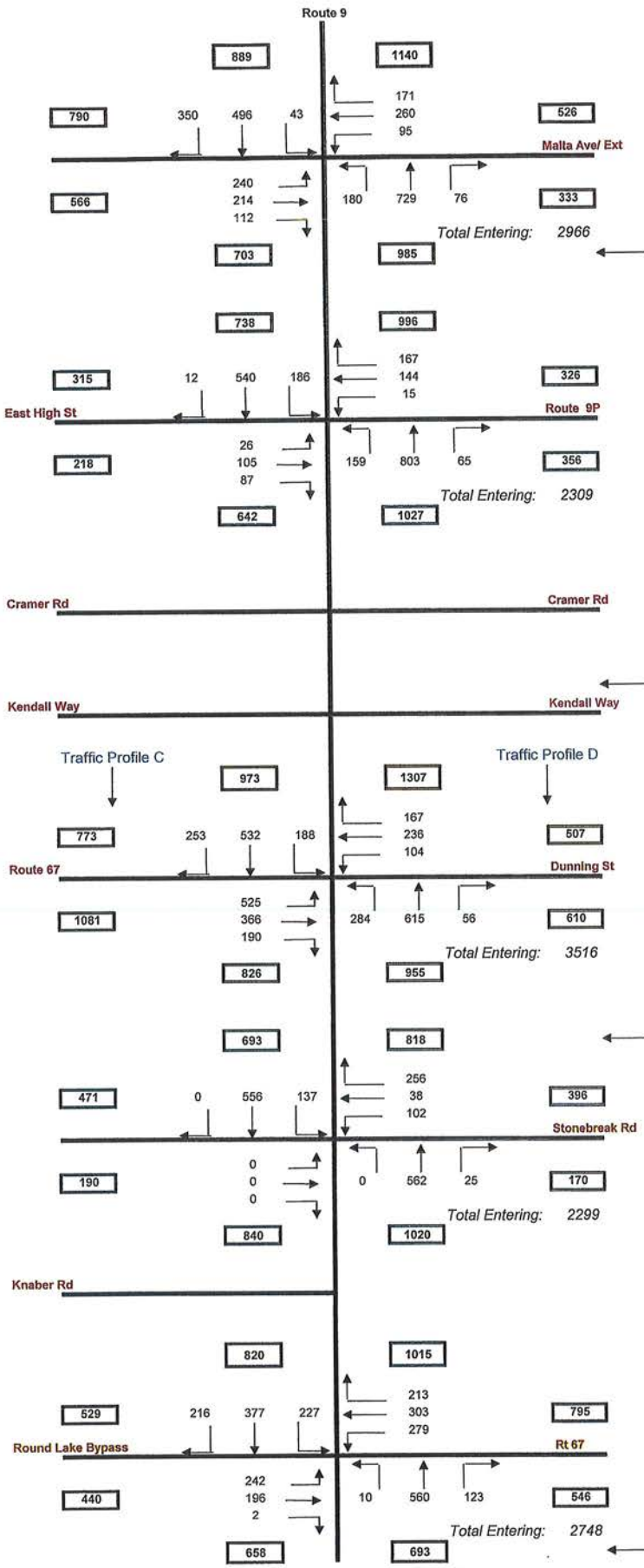
All movements operate at acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = B

All aproaches operate at acceptable LOS

All movements operate at acceptable v/c ratio (0.85 or lower)

Figure 9: Planned 2025-30 Traffic Condition



Overall Intersection LOS = F

Two approaches, EB & NB operate at LOS E/F

EB & NB movements operate above the acceptable v/c ratio at 0.96 & 1.76, respectively. WB & SB operates below v/c ratio 0.85

GEIS Plan mintigation would improve overall LOS to D

Overall Intersection LOS = C

All approaches operate at acceptable LOS (LOS D or better)

All movement operate at an acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = C

Three approaches operate at LOS D or better, and one approace at LOS F (WB)

Most movement operate at an acceptable v/c ratio (0.85 or lower)

Overall Intersection LOS = D

Two approach operate at LOS E (SB/EB) and the other two at acceptable LOS (LOS D or better)

SB & EB movements operate at v/c ratio of 0.96 & 0.98, respectively.
NB & WB at acceptable v/c ratio of 0.68 & 0.9, respectively

Overall Intersection LOS = A

Most approaches operate at accetable LOS (LOS D or better)

Most movement operate at an acceptable v/c ratio (0.85 or lower)

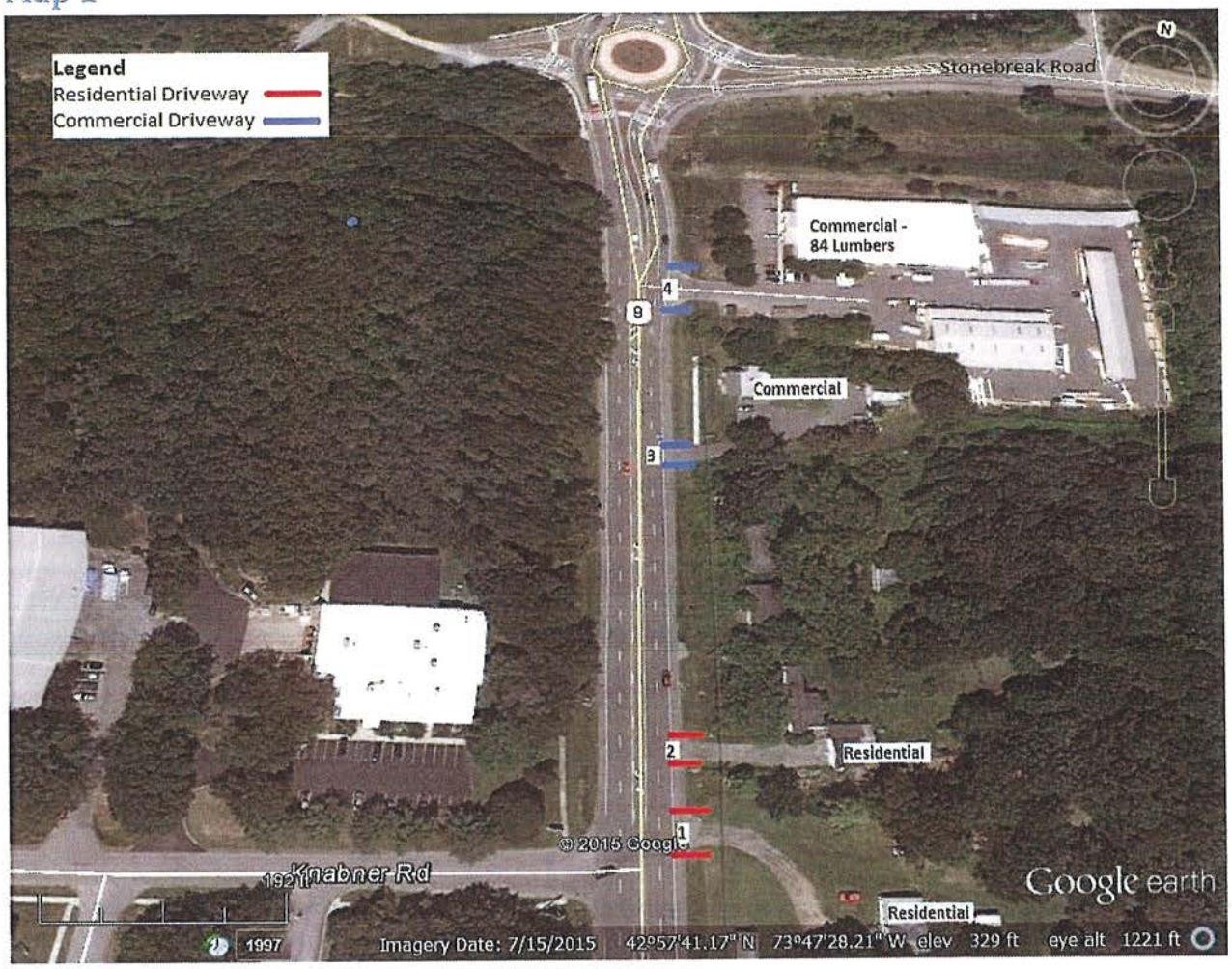
Overall Intersection LOS = C

Most approaches operate at acceptable LOS (LOS D or better) except WB (LOS F)

Most movement operate at an acceptable v/c ratio (0.85 or lower) except WB at v/c ratio 1.10

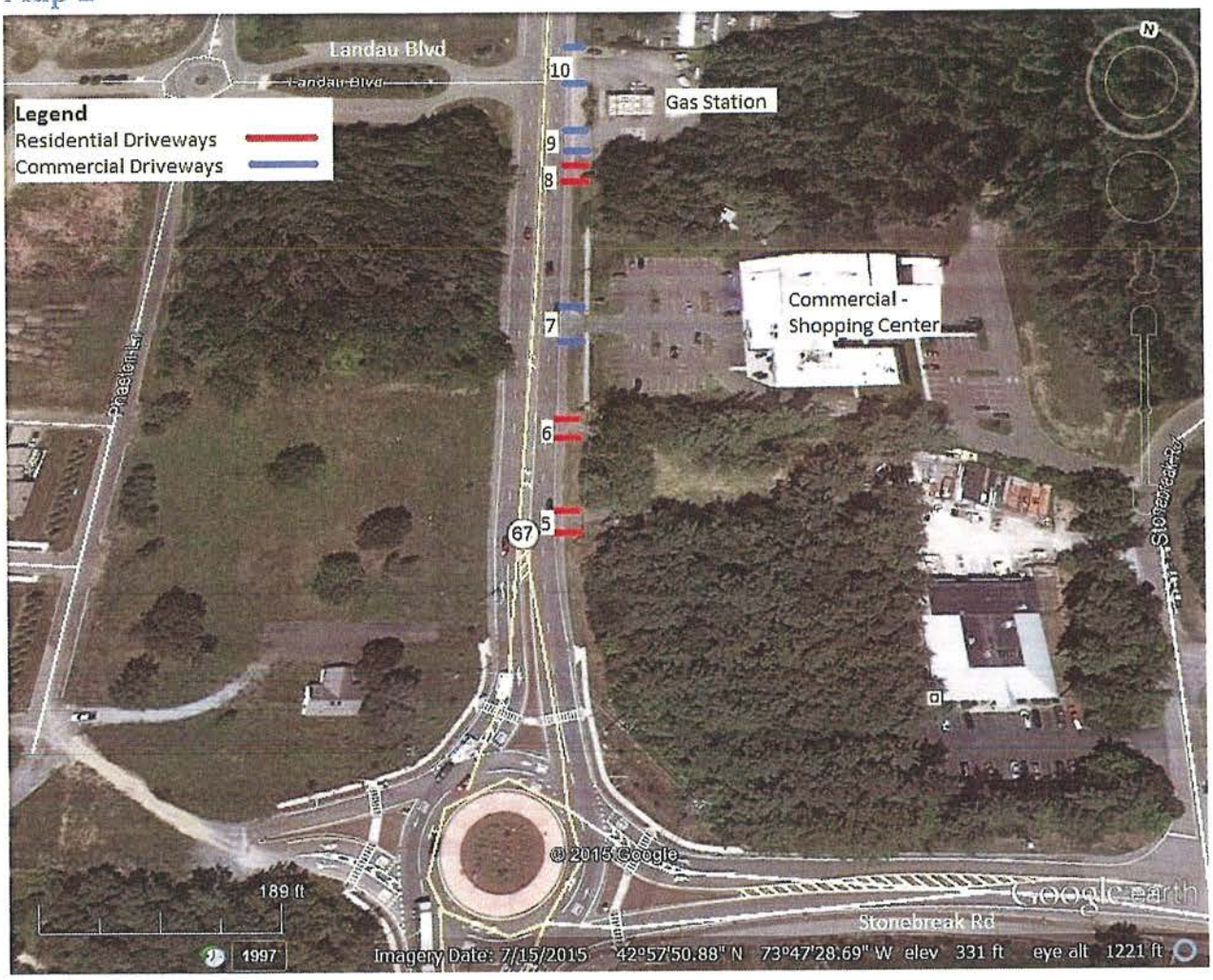
Driveway Inventory

Map 1



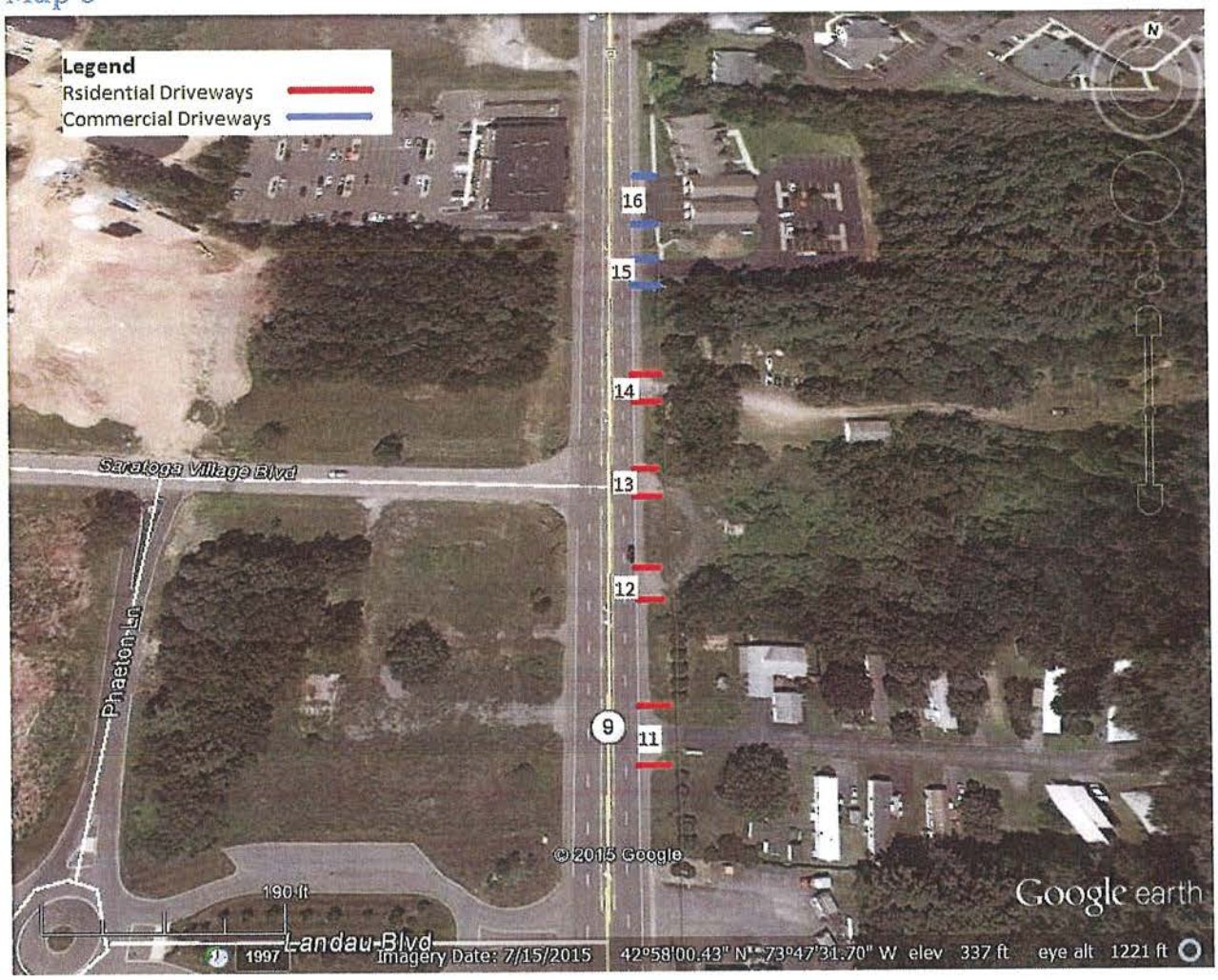
Total Properties Served		4
Street Intersection	Stop uncontrolled	1
	Signal	0
	Roundabouts	1
Full access driveways		4
Restricted driveways		0
Traffic Crashes		
Number of Residential Driveways		2
Number of Commercial Driveways		2
Driveway Density (Number/Mile)	4/0.2	20
Level of Compatibility		C

Map 2



Total Properties Served		4
Street Intersection	Stop uncontrolled	1
	Signal	0
	Roundabouts	1
Full access driveways		2
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		3
Number of Commercial Driveways		3
Driveway Density (Number/mile)	6/0.2	30
Level of Compatibility		D

Map 3



Total Properties Served		4
Street Intersection	Stop uncontrolled	1
	Signal	0
	Roundabouts	0
Full access driveways		4
Restricted driveways		2
Traffic Crashes		
Number of Residential Driveways		4
Number of Commercial Driveways		2
Driveway Density (Number/mile)	6/0.2	30
Level of Compatibility		D

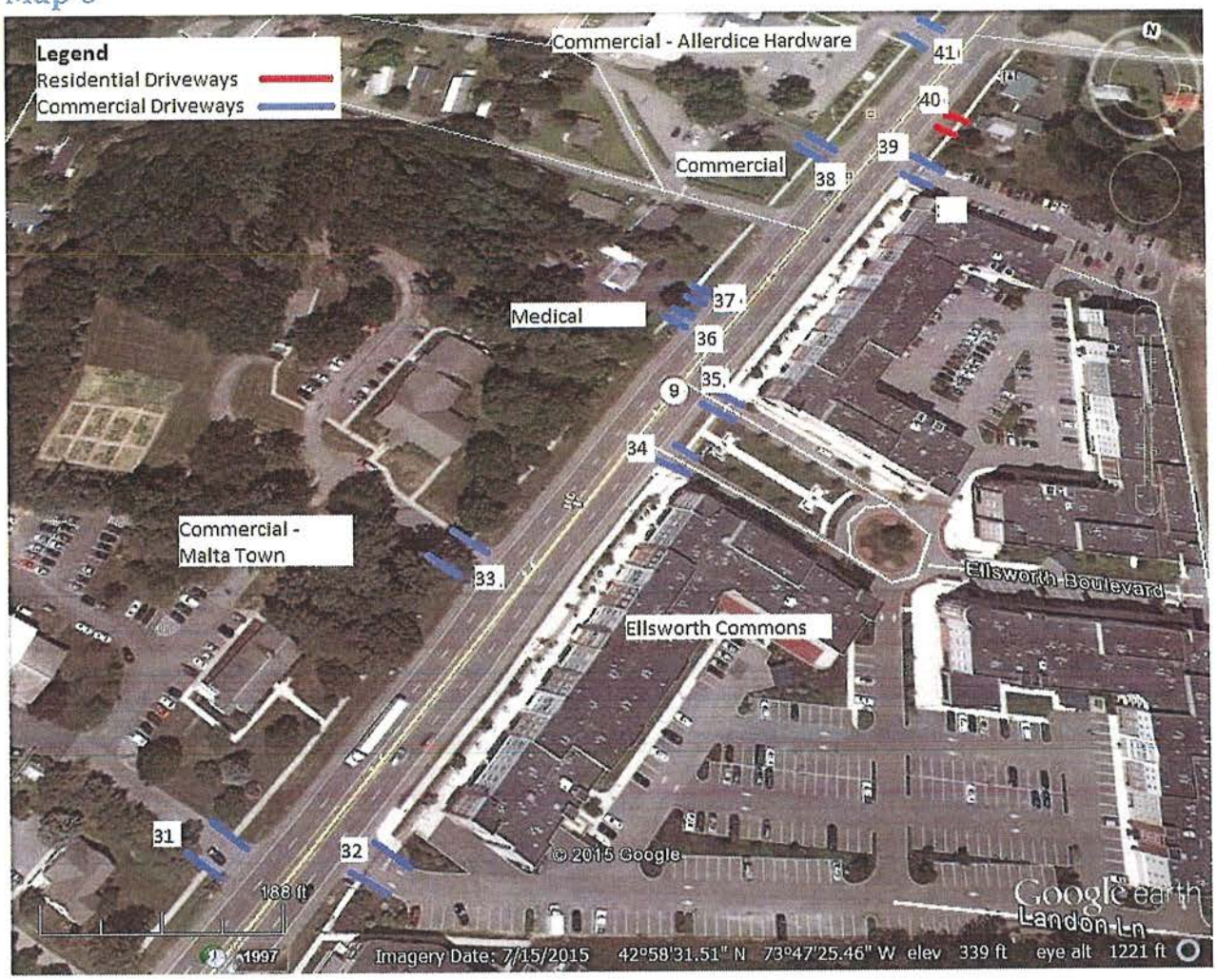
Map 4

Total Properties Served		4
Street Intersection	Stop uncontrolled	2
	Signal	0
	Roundabouts	0
Full access driveways		3
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		0
Number of Commercial Driveways		7
Driveway Density (Number/mile)	7/0.2	35
Level of Compatibility		D

Map 5

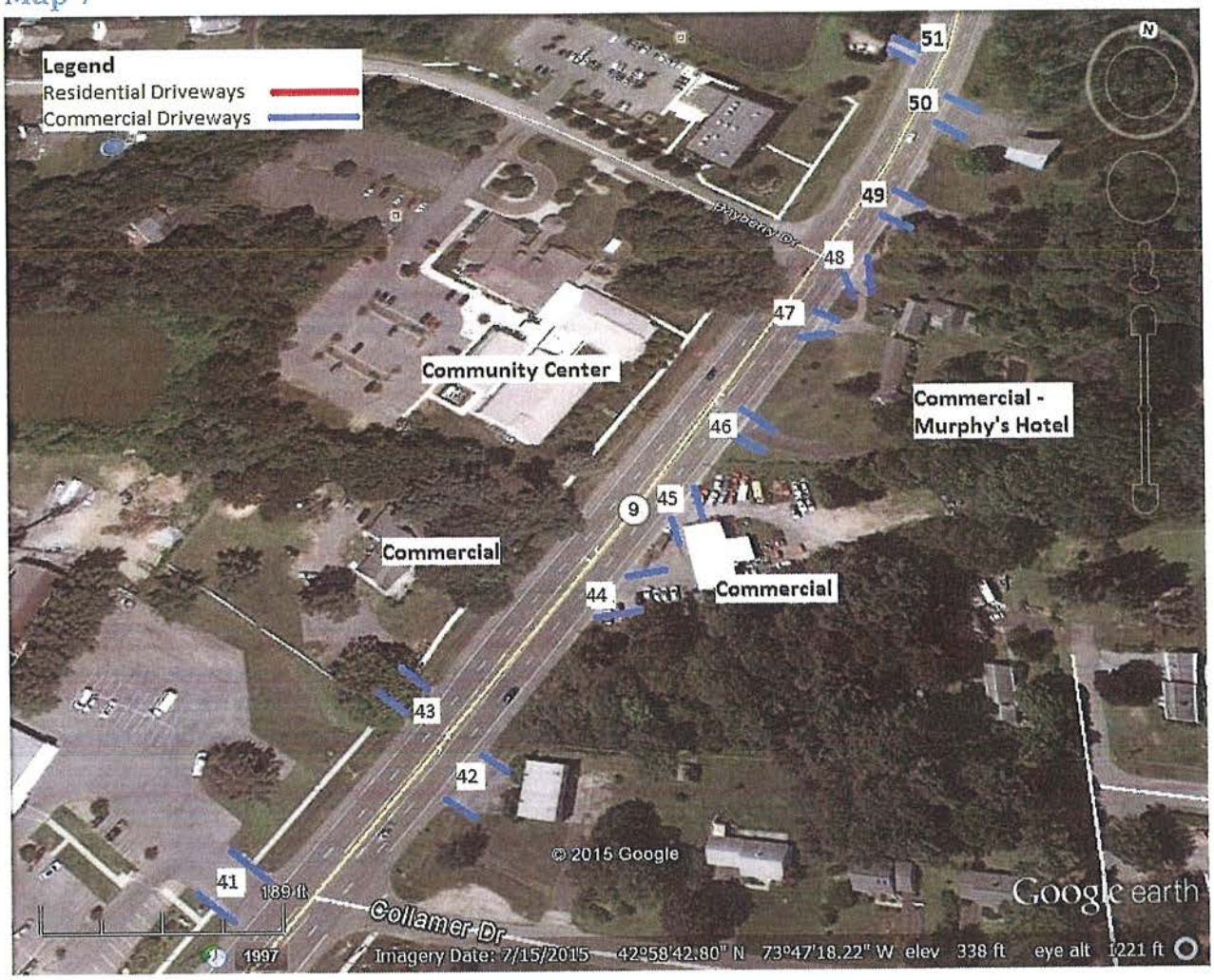
Total Properties Served		4
Street Intersection	Stop uncontrolled	0
	Signal	1
	Roundabouts	1
Full access driveways		3
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		0
Number of Commercial Driveways		7
Driveway Density (Number/mile)	7/0.2	35
Level of Compatibility		E

Map 6



Total Properties Served		6
Street Intersection	Stop uncontrolled	2
	Signal	0
	Roundabouts	0
Full access driveways		7
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		1
Number of Commercial Driveways		10
Driveway Density (Number/mile)	11/0.3	37
Level of Compatibility		E

Map 7



Total Properties Served		6
Street Intersection	Stop uncontrolled	2
	Signal	0
	Roundabouts	0
Full access driveways		7
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		0
Number of Commercial Driveways		11
Driveway Density (Number/mile)	11/0.3	37
Level of Compatibility		E

Map 8

Total Properties Served		5
Street Intersection	Stop uncontrolled	0
	Signal	0
	Roundabouts	0
Full access driveways		3
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		1
Number of Commercial Driveways		6
Driveway Density (Number/mile)	7/0.2	35
Level of Compatibility		E

Map 9

Total Properties Served		5
Street Intersection	Stop uncontrolled	1
	Signal	0
	Roundabouts	0
Full access driveways		3
Restricted driveways		4
Traffic Crashes		
Number of Residential Driveways		1
Number of Commercial Driveways		6
Driveway Density (Number/mile)	7/0.2	35
Level of Compatibility		E

Table 1: Malta Route 9: Arterial – Land Access Conflict Index

	AADT	Total segment Length (ft)	Number of Driveways	Distance between driveways (ft)	Arterial Conflict Index	LOC
Map 1	11241	1056	4	264.00	42.58	C
Map 2	11241	1056	6	176.00	63.87	D
Map 3	11241	1056	6	176.00	63.87	D
Map 4	11241	1056	7	150.86	74.51	D
Map 5	15556	1056	7	150.86	103.12	E
Map 6	15556	1584	11	144.00	108.03	E
Map 7	15556	1584	11	144.00	108.03	E
Map 8	15556	1056	7	150.86	103.12	E
Map 9	15556	1056	7	150.86	103.12	E

Level of Compatibility Thresholds Developed through CDTC's Regional Highway System Review; Driveway Spacing Inventory Suggested Threshold and Corresponding Descriptions

Arterial - Land Access Conflict	Arterial Conflict Index	Level of Compatibility
Arterial Function not affected by access	0 - 9.9	A
Aware of turning traffic, but not an issue	10 - 19.9	B
Access traffic noticeable; a concern	20 - 49.9	C
Frequent conflict between access and through traffic	50 - 99.9	D
Persistent conflict between access and through traffic	100 - 199.9	E
Either access or through movement not functional	200 +	

Table 2: Bicycle Level of Service (BLOS) for the US 9 Corridor

Road	Start	End	Length	Direction	Number of Lanes (L)		Traffic Vol. Data		Posted Speed	Pavement Width			Pavement Condition	Is Bike lane available?	BLOS	
							Traffic Vol.	Truck								
					Thru	Turn	(ADT)	(HV)	(SP_P)	(W_t)	Adj. (W_l)	(W_l)	(PC_t)	(Yes/No)	Score	Grade
			(Mi)				(vpd)	(%)	mph	(ft)	(ft)	(ft)	(1...5)			(A...F)
Malta Route 9																
Segment 1: Route 9 / Malta Ave/ Ext																
US 9	Rt87I Exit 13	Rt9P Junction	1.60	**NB**	2	1	*9,200*	5.65	65	12.0	6.0	6.0	4.0	No	**2.83**	**C**
US 9	Rt9P Junction	Rt87I Exit 13	1.60	**SB**	2	1	*8,150*	6.09	55	12.0	6.0	6.0	4.0	No	**2.85**	**C**
Segment 2:																
US 9	Rt9P	Cramer Rd	0.60	**NB**	2	1	*8,600*	6	45	12.0	6.0	6.0	4.0	No	**2.67**	**C**
US 9	Cramer Rd	Rt9P	0.60	**SB**	2	1	*5,900*	6	45	12.0	6.0	6.0	4.0	No	**2.48**	**B**
Segment 3:																
US 9	Cramer Rd	Rt67/Dunning St	1.00	**NB**	2	1	*8,700*	6	45	12.0	6.0	6.0	4.0	No	**2.68**	**C**
US 9	Rt67/Dunning St	Cramer Rd	1.00	**SB**	2	1	*4,900*	6	45	12.0	6.0	6.0	4.0	No	**2.38**	**B**
Segment 4:																
US 9	Rt67/Dunning St	stonebreak rd	1.60	**NB**	2	1	*8,250*	6	55	12.0	6.0	6.0	4.0	No	**2.84**	**C**
US 9	stonebreak rd	Rt67/Dunning St	1.60	**SB**	2	1	*5,550*	6	55	12.0	6.0	6.0	4.0	No	**2.65**	**C**

BLOS (Model Version 2.0)

BLOS = a1 ln (Vol15/L) + a2 SPt (1+10.38 HV)2 - a3 We2 + a4 (1/PR5)2 + C

Where,

a1 = 0.507 a2 = 0.199 a3 = 7.066 a4 = - 0.005

(a1 - a4) are coefficients established by multi-variate regression analysis.

C = 0.760 (Constant)

ln = Total number of directional through lanes

Vol15 = Volume of directional traffic in 15 minute time period

= (ADT x D x Kd) / (4 x PHF)

Where,

D = Directional Factor

Kd = Peak to Daily Factor

PHF = Peak Hour Factor

SP_t = Effective speed limit

= 1.1199 ln (SPp - 20) + 0.8103

Where,

SPp = Posted speed limit (a surrogate for average running speed)

HV = percentage of heavy vehicles (as defined in the 1994 Highway Capacity Manual)

PR5 = FHWA's five point pavement surface condition rating

We = Average effective width of outside through lane

Where,

We = Wv-(10x%OOSP)-(WgxN/66Ls) when Wl = 0

We = Wv+(PCl/PCt)xWlx(1-2x%OOSP)-(WgxN/66Ls) for cases where Wl>0 and Wps = 0

We = Wv+(PCl/PCt)xWl-2(10x%OOSP)-(WgxN/66Ls) for cases where Wl>0, Wps>0, and Bike Lane Exists

Wv = Wt - (10x%OOSP) if ADT > 4,000 v pd

Wv = Wt (2-0.00025xADT) if ADT <= 4,000 vpd

Where,

PCt = Pavement Condition

L = Number of Lanes

Wg = width of grate for cases

OSPA = percentage of segment with occupied on-street parking

ADT = Average Daily Traffic on the segment or link

Wl = width of paving between the outside lane stripe and the edge of pavement i.e., the Shoulder

Wt = total width of outside lane (and shoulder) pavement

Wv = Effective width as a function of traffic volume, and:

Wv = Wt if ADT > 4,000veh/day

Wv = Wt(2-0.00025 x ADT) if ADT ≤ 4,000veh/day, and if the street/road is undivided and unstriped

Wps= width of pavement striped for on-street parking

Lane Configuration:

U: Undivided

D: Divided

OW: One-way

S: Center Turn Lane

Bicycle Level of Service Categories

Bicycle Compatibility Index associated with BLOS Score

A ≤1.5 (Extremely High)

B >1.5 and ≤2.5 (Very High)

C >2.5 and ≤3.5 (Moderately High)

D >3.5 and ≤4.5 (Moderately Low)

E >4.5 and ≤5.5 (Very Low)

F >5.5 (Extremely Low)

Pavement Condition Descriptions

RATING	PAVEMENT CONDITION
5.0 (Very Good)	Only new or nearly new pavements are likely to be smooth enough and free of cracks and patches to qualify for this category.
4.0 (Good)	Pavement, although not as smooth as described above, gives a first class ride and exhibits signs of surface deterioration.
3.0 (Fair)	Riding qualities are noticeably inferior to those above, may be barely tolerable for high-speed traffic. Defects may include rutting, map cracking, and extensive patching.
2.0 (Poor)	Pavements have deteriorated to such an extent that they affect the speed of free-flow traffic. Flexible pavement has distress over 50 percent or more of the surface. Rigid pavement distress includes joint spalling, patching, etc
1.0 (Very Poor)	Pavements that are in an extremely deteriorated condition Distress occurs over 75 percent or more of the surface.

Source U.S. Department of Transportation. Highway Performance Monitoring System-Field Manual Federal Highway Administration. Washington, DC 1987

Pavement Condition:

Travel Lane (PC t) - Pavement condition of the outside motor vehicle travel lane is evaluated according to FHWA's five-point pavement surface condition rating shown below. Unpaved travel lanes should be scored with a zero (0). Shoulder or Bike lane (PC l) - Pavement condition of the shoulder or bike lane is evaluated according to the FHWA's five-point pavement surface condition rating shown below. (Unpaved shoulders do not receive a zero score, see roadside profile condition.)

ATTACHMENT C

DESIGN CRITERIA TABLES

Design Criteria [1] - US ROUTE 9 (CORE Section: Saratoga Village Blvd. to Collamer Dr.)

PIN:	**TBD**	NHS (Y/N):	**Yes**
Route No. & Name:	**US Route 9**	Functional Class:	**Urban - Principal Arterial**
Project Type:	**Roadway Reconstruction**	Design Classification:	**Urban Arterial**
% Trucks:	**6%**	Terrain:	**Level**
ADT:	**15,556**	Truck Access/Qual. Hwy.	**Yes**

	Element		Standard	Existing	Proposed (FBC)
1	Posted Speed (Current)		N/A	30 mph	30 mph
2	Target Speed[2]		N/A	N/A	30 mph
3	Design Speed[2]		35 mph	N/A	30 - 35 mph
4	Lane Width		11 ft	11 ft	11 ft
5	Turning Lane Width		11ft - 12 ft	11 ft	12 ft
6	Climbing Lane Width		N/A	N/A	N/A
7	Parking Lane Width		8ft - 12 ft	N/A	8 ft
8	Shoulder Width Curbed	Left:	0 ft - 2 ft	N/A	0 ft
		Right:	0 ft - 4 ft	N/A	0 ft
9	Shoulder Width Uncurbed	Left:	4 ft	8 ft (Varies)	N/A
		Right:	8 ft	8 ft (Varies)	N/A
10	Bridge Roadway Width		N/A	N/A	N/A
11	Maximum Grade		7 % Max	7 % Max	7 % Max.
12	Horizontal Curvature		371 ft Min.	N/A	371 ft Min.
13	Maximum Superelevation		4 % Max	4 % Max	4 % Max.
14	Stopping Sight Distance		250 ft Min.	>250 ft	250 ft Min.
15	Horizontal Clearance	w/ Barrier:	0 ft	0 ft	0 ft
		w/o Barrier:	1.5 ft	1.5 ft	1.5 ft
16	Vertical Clearance		N/A	N/A	N/A
17	Travel lane Cross Slope		1.5 % - 2.0 %	2.00%	1.5 % - 2.0 %
18	Parking Lane Cross Slope		N/A	N/A	2.0 % - 5.0 %
19	Shoulder Cross Slope		N/A	N/A	6% Max.
20	Rollover	Between Lanes:	4% Max	4.00%	4.00%
		At Edge of Travel Way:	8% Max	8.00%	8.00%
21	Structural Capacity		N/A	N/A	N/A
22	Level of Service[3]		N/A	C	***
23	Control of Access		Uncontrolled	Uncontrolled	Uncontrolled
24	Pedestrian Accommodations (Sidewalk)		**	5 ft (Varies)	10 ft Wide
25	Median Width[4]		4 ft - 12 ft	10 ft	12 ft
26	Design Vehicle		WB-20	N/A	WB-20
27	Separated Bicycle Pathway Width (Cycle Track)[5]		10 ft Min.	N/A	12ft (West Side Only)
28	Multi Use Path Width		10 ft - 14 ft	N/A	N/A
29	Landcape Buffer Width		5 ft - 6 ft	N/A	6 ft

Existing: Null Design

Proposed: Full Build Design

** Pedestrian facilities to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Chapter 18 of the HDM

*** Planned 2025-30 Traffic Condition - LOS D

Notes:

1 *The values in this table reflect current ADA standards for pedestrian facilities. Proposed PROWAG guidelines have suggested different standards for some features. For example, current standards call for a maximum parking lane cross-slope of five percent, while PROWAG is considering adopting a maximum of two percent. This difference will impact vertical design requirements of the proposed complete street. Current NYSDOT standard for parking lane slope is five percent, which meets current ADA standards.*

2 *The most influential design control, and the design control that provides significant flexibility in urban areas, is speed. Ideally, street design should be based or both design speed and target speed. Design speed governs certain geometric features of a roadway – primarily horizontal curvature, vertical curvature, superelevation, horizontal clearance, and sight distance. The target speed, in contrast, is the desirable speed at which vehicles should operate in a specific context, consistent with the level of multi-modal activity generated by nearby land use to provide a safe environment for pedestrians, cyclists, and transit users. For a town center, much like the design supported by Malta's FBC Plan, the Urban Land Institute, NACTO, ITE, and others recommend establishing a target speed of 25-35 mph. For this study, a target speed of 30 mph is recommended for the core area, and 35 mph for the transition area. Design speed should be no greater than 5 mph over the target speed.For an Urban Principal Arterial within a Central Business District, the design speed may range from 30 mph to 60 mph in accordance with the NYSDOT HDM Section 2.7.2.2.A.*

3 *Level-of-Service C conditions can be maintained through 2025 as long as the number of midblock lanes and intersection configuration do not change from what they are now. Under a road diet, however, LOS will drop to D in some locations. Creating a complete street will require an adjustment to traditional leve of-service design policies and practices in order to effectively create a complete street environment.*

4 *Existing median width is 10 feet. The proposed cross-section calls for 12 feet to accommodate storage for median cuts and/or u-turns. If neither of these features is needed, then median should be kept as narrow as possible.*

5 *The FBC plan calls for the use of cycle track to accommodate bicycles. At this time, cycle track is not defined in NYSDOT's Design Manual. An alternative will have to be discussed as design progresses. The point of this exercise is to ensure that the width of any bike facility -- whether a cycle track, multi-use path, or separated bike lanes – is included in the analysis.*

Design Criteria [1] - US ROUTE 9 (CORE Section: Saratoga Village Blvd. to Collamer Dr.)			
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17	Travel lane Cross Slope		1.5 % - 2.0 %	2.00%	1.5 % - 2.0 %
18	Parking Lane Cross Slope		N/A	N/A	2.0 % - 5.0 %
19	Shoulder Cross Slope		N/A	N/A	6% Max.
20	Rollover	Between Lanes:	4% Max	4.00%	4.00%
		At Edge of Travel Way:	8% Max	8.00%	8.00%
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22	Level of Service[3]		N/A	C	***
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28	Multi Use Path Width		10 ft - 14 ft	N/A	N/A
29	Landcape Buffer Width		5 ft - 6 ft	N/A	6 ft

Existing: Null Design

Proposed: Full Build Design

** Pedestrian facilities to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Chapter 18 of the HDM

*** Planned 2025-30 Traffic Condition - LOS D

Notes:

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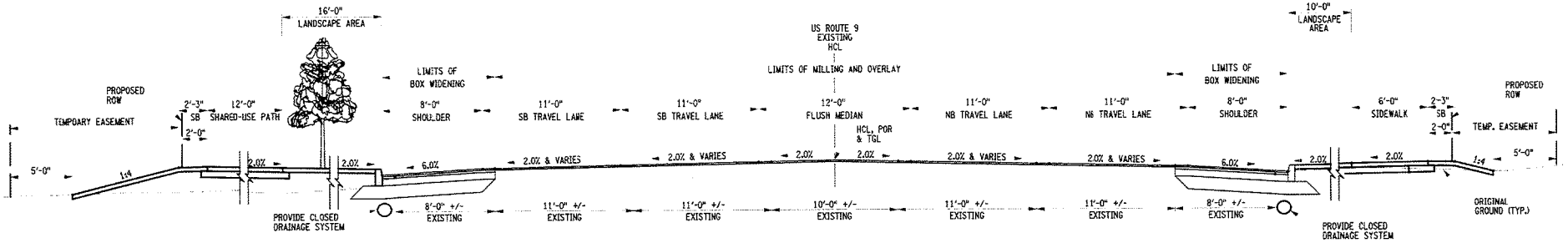
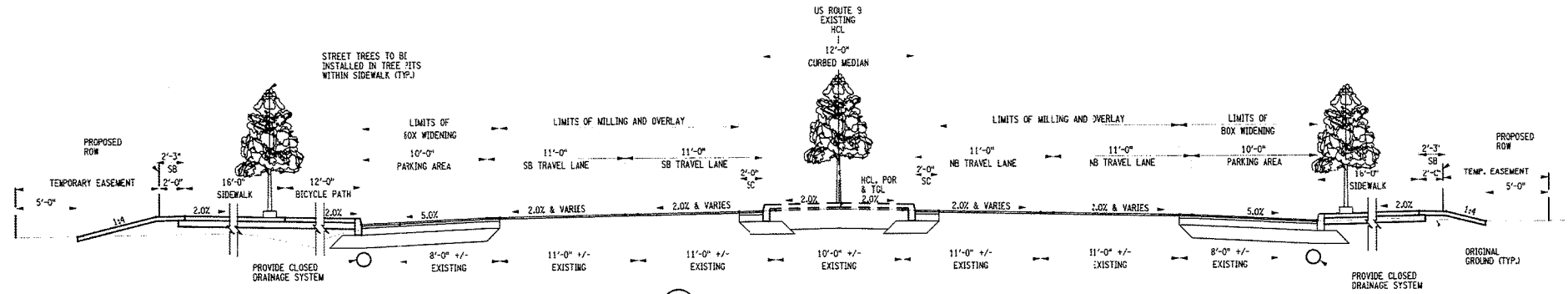
ATTACHMENT D

PROPOSED PLAN DRAWINGS & PROFILES



1 TYPICAL SECTION - US ROUTE 9 (NON-CORE AREA)

SCALE: 1/8"=1'-0"
(STA. 11+00 TO STA. 16+00)
(STA. 24+25 TO STA. 34+75)
(STA. 76+00 TO STA. 105+50)
(SECTION CUT AT STA. 28+50)



2 TYPICAL SECTION - US ROUTE 9 (CORE AREA)

SCALE: 1/8"=1'-0"
(STA. 34+75 TO STA. 47+75)
(STA. 53+10 TO STA. 59+00)
(STA. 73+00 TO STA. 76+00)
(SECTION CUT AT STA. 41+00)

B. COOPER
L. WALLIN
A. GORZA
L. WALLIN
B. COOPER / A. GORZA
L. WALLIN
B. COOPER

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TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

TYPICAL SECTIONS

ROUTE 9 TYPICAL SECTION - 01

DRAWING NO. TYP - 01
SHEET NO. 01 OF 02

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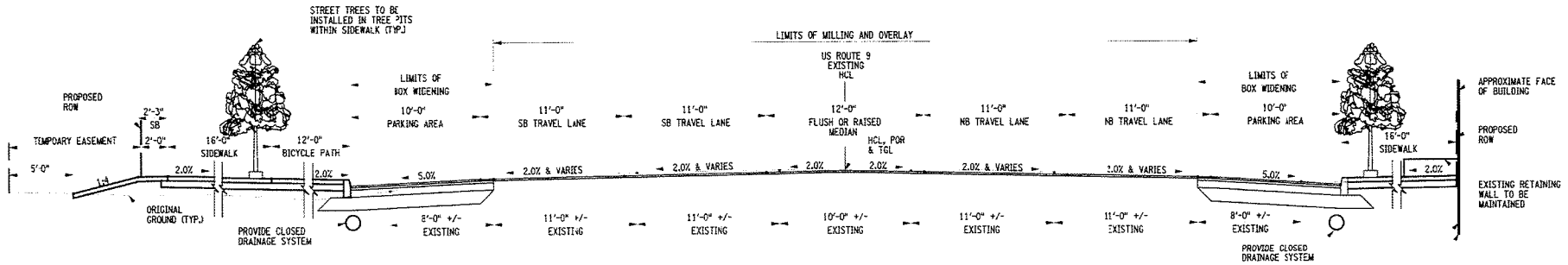
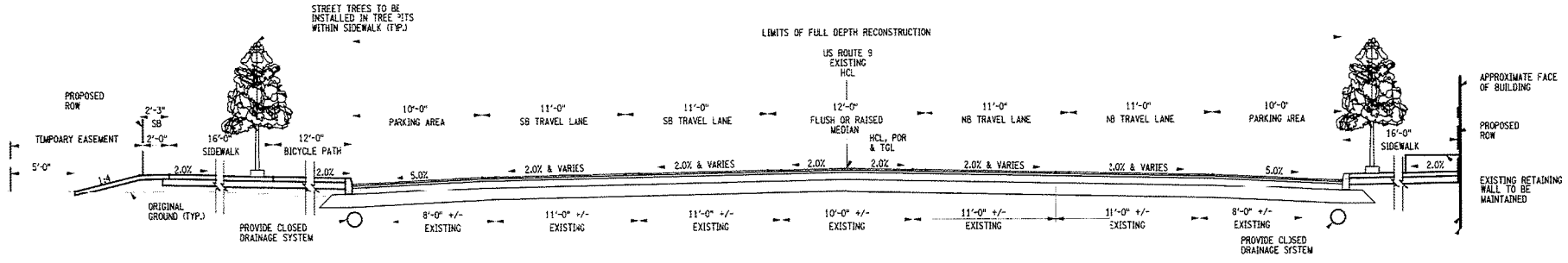


NOTE: HCL VERITCAL ALIGNMENT IN THE VICINITY OF THE ELLSWORTH COMMONS BUILDINGS WILL BE GOVERNED BY FINISHED FLOOR ELEVATION TIE-IN AND MAY REQUIRE FULL DEPTH RECONSTRUCTION OF ROUTE 9

3A TYPICAL SECTION - US ROUTE 9 (CORE AREA)

SCALE: 1/8"=1'-0"
(STA. 59+00 TO STA. 73+00)
(SECTION CUT AT STA. 65+00)



NOTE: HCL VERITCAL ALIGNMENT IN THE VICINITY OF THE ELLSWORTH COMMONS BUILDINGS WILL BE GOVERNED BY FINISHED FLOOR ELEVATION TIE-IN AND MAY REQUIRE FULL DEPTH RECONSTRUCTION OF ROUTE 9

3B TYPICAL SECTION - US ROUTE 9 (CORE AREA)

SCALE: 1/8"=1'-0"
(STA. 59+00 TO STA. 73+00)
(SECTION CUT AT STA. 65+00)

B. COOPER
L. WALLIN
A. BORZA
L. WALLIN
B. COOPER / A. BORZA
L. WALLIN
B. COOPER

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS	
FEASIBILITY STUDY	
TOWN OF MALTA	
COUNTY: SARATOGA	

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

TYPICAL SECTIONS

ROUTE 9 TYPICAL SECTION - 02

DRAWING NO. TYP - 02
SHEET NO. 02 OF 02

Engineering and Land Surveying P.C

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LEGEND:

AHB - APPROXIMATE HIGHWAY BOUNDARY
AHB - ROW TAX MAP ACCURACY
AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
EXISTING DRIVEWAY
PROPOSED TREE PIT

DESIGN SUPERVISOR B. COOPER | JOB MANAGER L. WALLIN | DESIGN B. COOPER / A. BORZA CHECK L. WALLIN | DRAFTING A. BORZA CHECK L. WALLIN | PROJECT MANAGER B. COOPER

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USER = DOH\$USERNAME
$TIME$

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 01

DRAWING NO. GNP_B_01
SHEET NO. 01 OF 09

Engineering and Land Surveying, P.C.

LEGEND:

- AHB - APPROXIMATE HIGHWAY BOUNDARY
- AHB - ROW TAX MAP ACCURACY
- AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
- EXISTING DRIVEWAY
- PROPOSED TREE PIT

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS	
FEASIBILITY STUDY	
TOWN OF MALTA	
COUNTY: SARATOGA	

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 02

DRAWING NO. GNP_B_02
SHEET NO. 02 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR	B. COOPER	JOB MANAGER	L. WALLIN	DESIGN B. COOPER / A. BORZA	CHECK	L. WALLIN
DRAFTING	A. BORZA	CHECK	L. WALLIN	PROJECT MANAGER	B. COOPER	

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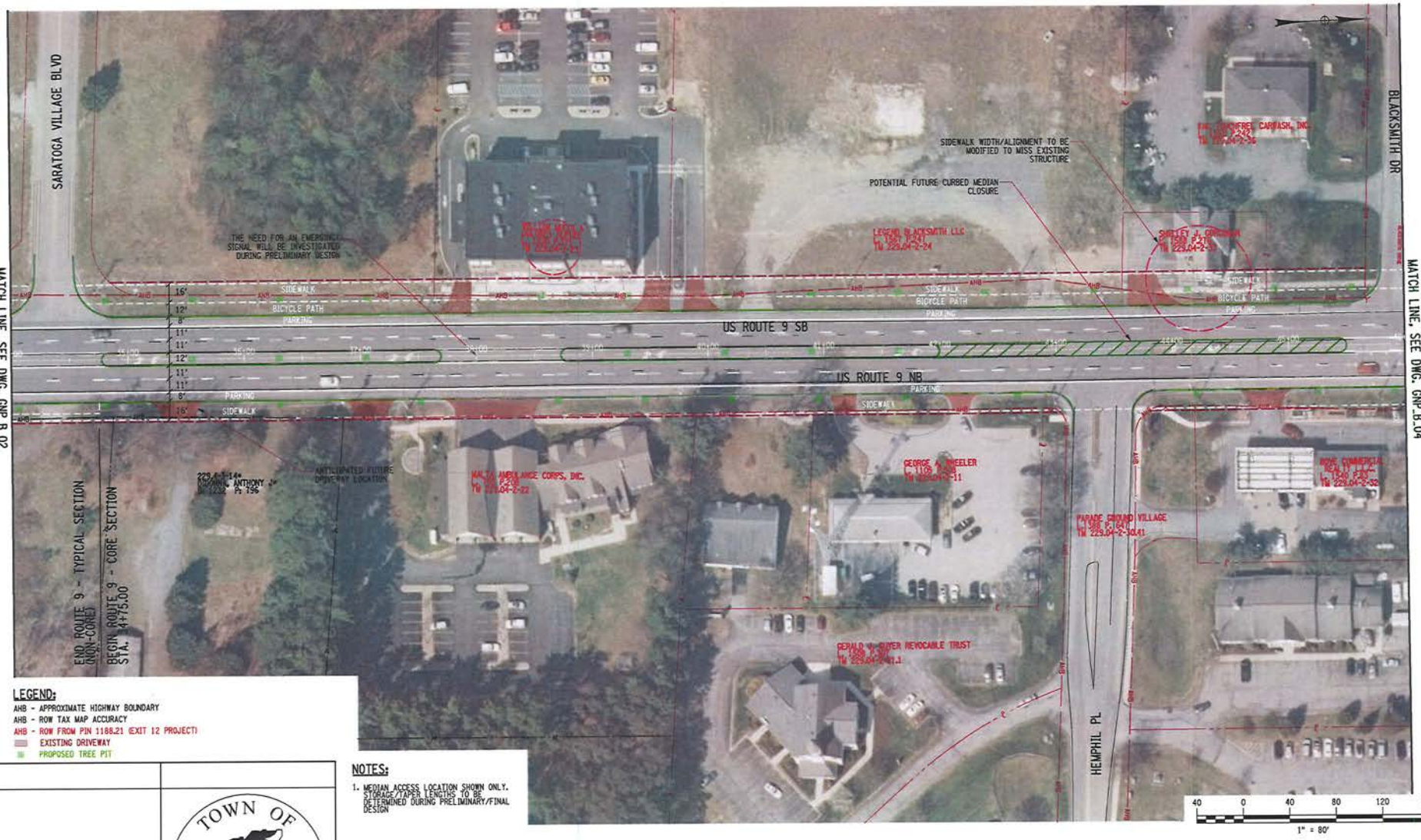

LEGEND:

AHB - APPROXIMATE HIGHWAY BOUNDARY
AHB - ROW TAX MAP ACCURACY
AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
EXISTING DRIVEWAY
PROPOSED TREE PIT

NOTES:

1. MEDIAN ACCESS LOCATION SHOWN ONLY. STORAGE/TAPER LENGTHS TO BE DETERMINED DURING PRELIMINARY/FINAL DESIGN

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 03

DRAWING NO. GNP_B_03
SHEET NO. 03 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR B. COOPER | JOB MANAGER L. WALLIN | DESIGN B. COOPER / A. BORZA | CHECK L. WALLIN | DRAFTING A. BORZA | CHECK L. WALLIN | PROJECT MANAGER B. COOPER

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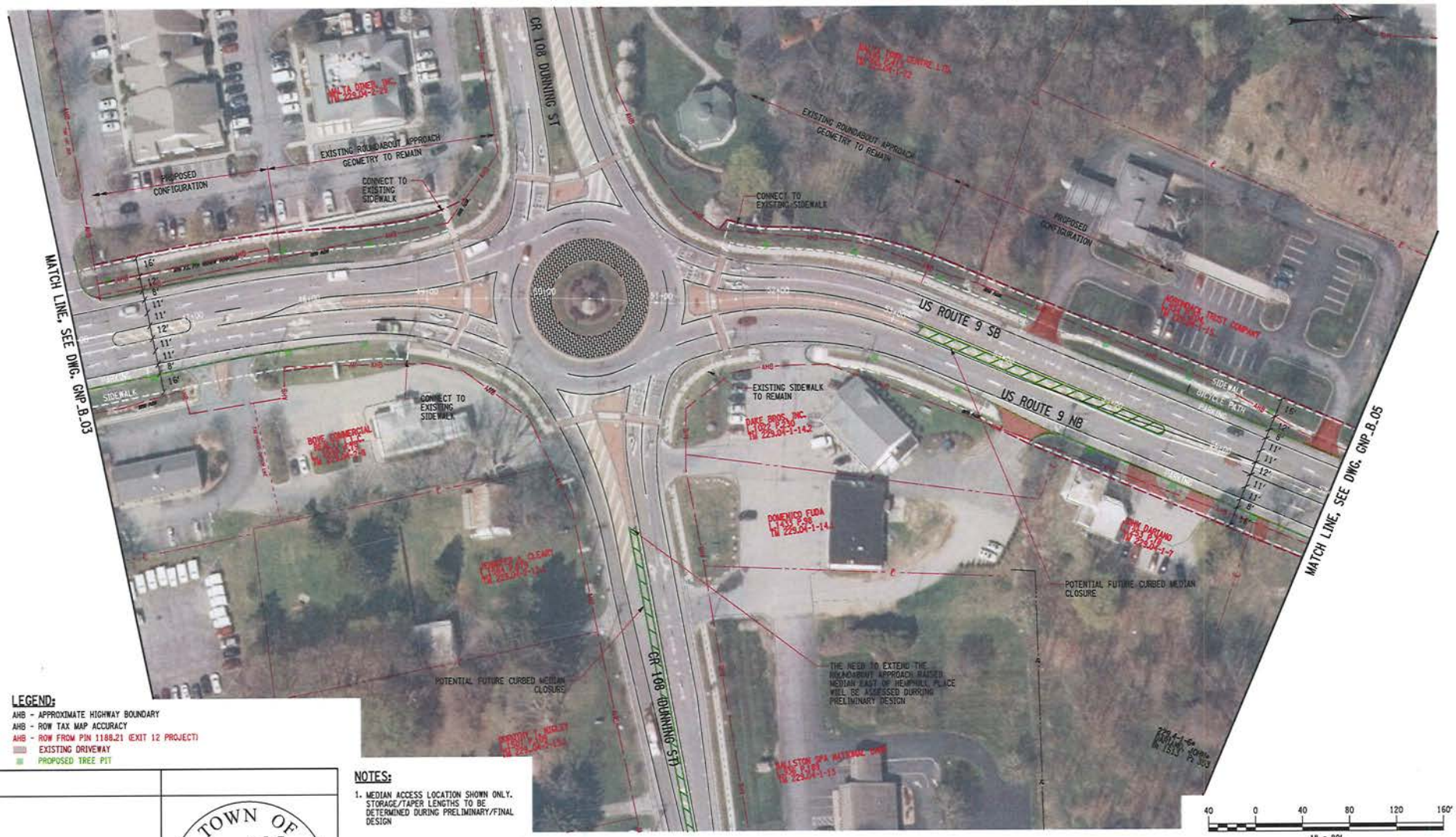

LEGEND:

AHB - APPROXIMATE HIGHWAY BOUNDARY
AHB - ROW TAX MAP ACCURACY
AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
EXISTING DRIVEWAY
PROPOSED TREE PIT

NOTES:

1. MEDIAN ACCESS LOCATION SHOWN ONLY. STORAGE/TAPER LENGTHS TO BE DETERMINED DURING PRELIMINARY/FINAL DESIGN

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 04

DRAWING NO. GNP_B_04
SHEET NO. 04 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR	B. COOPER	JOB MANAGER	L. WALLIN	DESIGN	B. COOPER / A. BORZA
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PROJECT MANAGER	B. COOPER				

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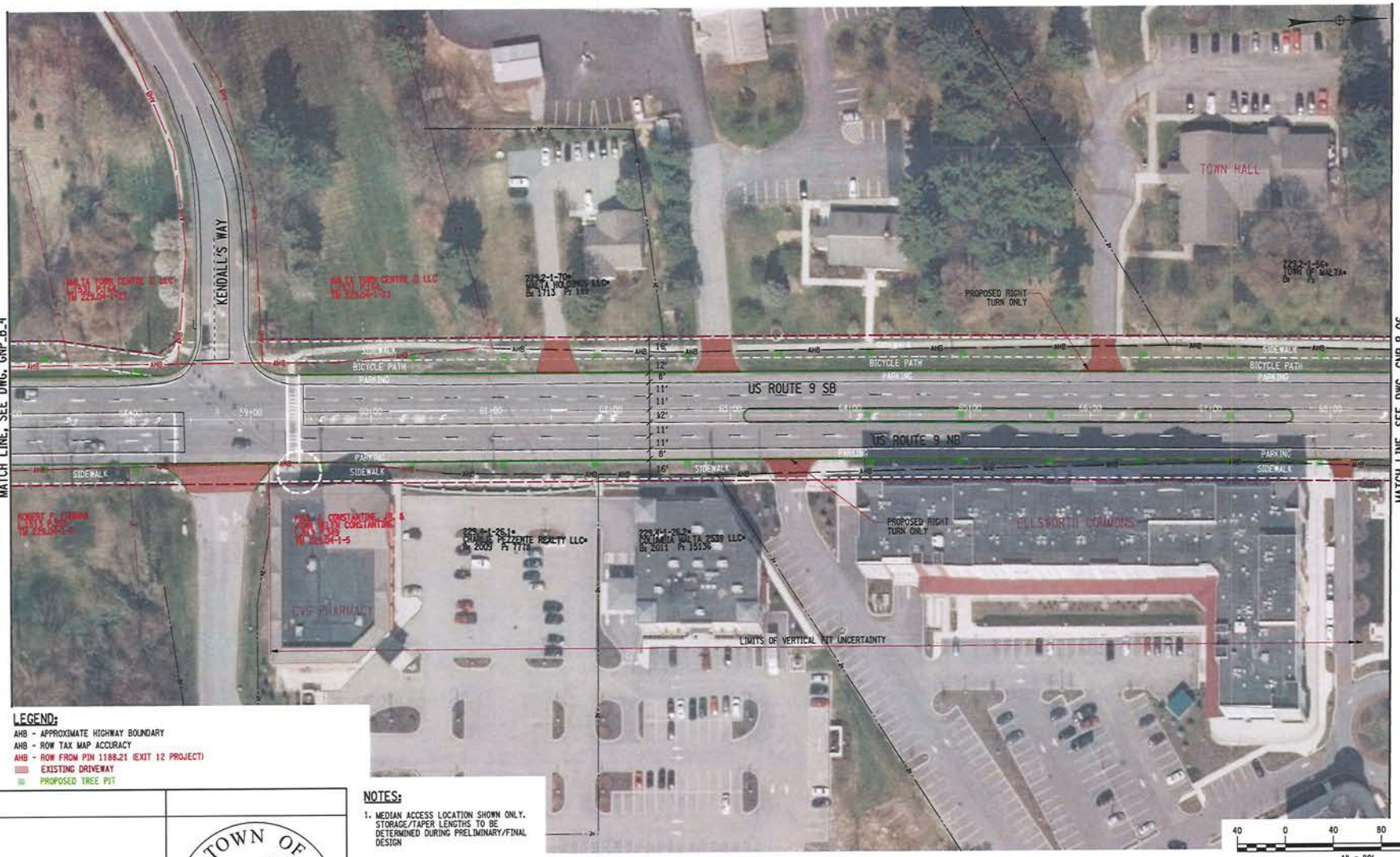

LEGEND:

AHB - APPROXIMATE HIGHWAY BOUNDARY
AHB - ROW TAX MAP ACCURACY
AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
EXISTING DRIVEWAY
PROPOSED TREE PIT

NOTES:

1. MEDIAN ACCESS LOCATION SHOWN ONLY. STORAGE/TAPER LENGTHS TO BE DETERMINED DURING PRELIMINARY/FINAL DESIGN

40 0 40 80 120 160'
1" = 80'

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 05

DRAWING NO. GNP_B_05
SHEET NO. 05 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR B. COOPER | JOB MANAGER L. WALLIN | DESIGN B. COOPER / A. BORZA | CHECK L. WALLIN | DRAFTING A. BORZA | CHECK L. WALLIN | PROJECT MANAGER B. COOPER

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LEGEND:

- AHB - APPROXIMATE HIGHWAY BOUNDARY
- AHB - ROW TAX MAP ACCURACY
- AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
- EXISTING DRIVEWAY
- PROPOSED TREE PIT

NOTES:

1. MEDIAN ACCESS LOCATION SHOWN ONLY. STORAGE/TAPER LENGTHS TO BE DETERMINED DURING PRELIMINARY/FINAL DESIGN

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS	
FEASIBILITY STUDY	
TOWN OF MALTA	
COUNTY: SARATOGA	

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 06

DRAWING NO. GNP_B_06
SHEET NO. 06 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR	JOB MANAGER	DESIGN	CHECK	DRAFTING	CHECK	PROJECT MANAGER	CHECK
B. COOPER	L. WALLIN	L. WALLIN	B. COOPER / A. BORZA	L. WALLIN	A. BORZA	L. WALLIN	B. COOPER

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LEGEND:

- AHB - APPROXIMATE HIGHWAY BOUNDARY
- AHB - ROW TAX MAP ACCURACY
- AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
- EXISTING DRIVEWAY
- PROPOSED TREE PIT

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY

TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 07

DRAWING NO. GNP_B_07
SHEET NO. 07 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR	B. COOPER	JOB MANAGER	L. WALLIN	DESIGN	B. COOPER / A. BORZA
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PROJECT MANAGER	B. COOPER				

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DESIGN SUPERVISOR B. COOPER
JOB MANAGER L. WALLIN
DESIGN B. COOPER / A. BORZA
CHECK L. WALLIN
DRAFTING A. BORZA
CHECK L. WALLIN
PROJECT MANAGER B. COOPER

LEGEND:

AHB - APPROXIMATE HIGHWAY BOUNDARY
AHB - ROW TAX MAP ACCURACY
AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
▨ EXISTING DRIVEWAY
🟩 PROPOSED TREE PIT

TOWN OF MALTA

DRAFT

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY
TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 08

-

DRAWING NO. GNP_B_08
SHEET NO. 08 OF 09

Engineering and Land Surveying, P.C.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND:

- AHB - APPROXIMATE HIGHWAY BOUNDARY
- AHB - ROW TAX MAP ACCURACY
- AHB - ROW FROM PIN 1188.21 (EXIT 12 PROJECT)
- EXISTING DRIVEWAY
- PROPOSED TREE PIT

40 0 40 80 120 160'

1" = 80'

DRAFT

TOWN OF MALTA

MALTA DOWNTOWN COMPLETE STREETS
FEASIBILITY STUDY

TOWN OF MALTA
COUNTY: SARATOGA

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENERAL PLAN
PROPOSED CONDITIONS PLAN - 09

DRAWING NO. GNP_B_09
SHEET NO. 09 OF 09

Engineering and Land Surveying, P.C.

DESIGN SUPERVISOR B. COOPER | JOB MANAGER L. WALLIN | DESIGN B. COOPER / A. BORZA | CHECK L. WALLIN | DRAFTING A. BORZA | CHECK L. WALLIN | PROJECT MANAGER B. COOPER

FILE NAME = $CONTROL$
DATE/TIME = $DATE$ $TIME$
USER = $LOGNAME

ATTACHMENT E

ILLUSTRATIONS SHOWING THE DIFFERENCE IN ELEVATION BETWEEN BUILDING FACE AND PAVEMENT ELEVATION NEEDED TO MEET THE REQUIRED CROSS-SLOPE


ELLSWORTH COMMONS BUILDING TWO
STA. 69+00 TO STA. 73+00
U.S. 9
Exit Street View
10'-0"
6'-0"
8'-0"
LANDSCAPE AREA
SIDEWALK AREA
DO NOT ENTER
© 2017 Google
© 2016 Google
Google Earth
42°58'34.98" N 73°47'22.37" W elev 380 ft eye alt 348 ft


ELLSWORTH COMMONS BUILDING ONE
STA. 63+50
10'-0"
6'-0"
8'-0"
10'-0" +/-
6'-0" +/-
SIDEWALK AREA
Google Earth

ATTACHMENT F

CONSTRUCTION COST DETAIL

Option 1 Concept-Level Engineer's Estimate

Malta Complete Streets
Route 9, Malta, NY

M.J. Engineering & Land Surveying, P.C.
3/30/2017

OPTION 1: **Box Wideneing of Route 9 within the project limits**
Landscaped raised median
Pedestrian accommodations
No full-depth reconstruction

Item	Description	Unit	Option 1 Quantity	Unit Price	Option 1 Cost
201.06	Clearing & Grubbing	LS	1	**$10,000.00**	$10,000.00
203.02	Unclassified Excavation and Disposal	CY	8655	**$12.00**	$103,860.00
207.24	Geotextile Stabilization	SY	14390	**$1.00**	$14,390.00
304.12	Subbase Course, Type 2	CY	10485	**$35.00**	$366,975.00
402..	HMA	T	8015	**$110.00**	$881,650.00
407.0102	Diluted Tack Coat	GAL	4795	**$2.00**	$9,590.00
490.10	Production Cold Milling of Bituminous Concrete	SY	47420	**$3.00**	$142,260.00
608.0101	Concrete Sidewalks and Driveways	CY	1735	**$400.00**	$694,000.00
608.020102	Hot Mix Asphalt (HMA) Driveways and Bicycle Paths	T	255	**$105.00**	$26,775.00
609.0401	Cast-in-Place Concrete Curb Type VF150	LF	20560	**$25.00**	$514,000.00
611.0171	Planting - Major Deciduous Trees - 3 Inch Caliper Ball & Burlap	EA	204	**$250.00**	$51,000.00
619.01	Work Zone Traffic Control	LS	1	**$200,000.00**	$200,000.00
625.01	Survey Operations	LS	1	**$30,000.00**	$30,000.00
637.11	Engineers Field Office - Type 1	MNTH	24	**$1,500.00**	$36,000.00
699.040001	Mobilization (4% of Construction Cost)	LS	1	**$1.00**	$154,025.00

Sub Total	$3,080,500
Estimate Signage and stripes @ 5%	$154,025.00
Estimate Drainage @ 20%	$616,100.00
Construction Inspection/Support (15%)	$577,593.75
TOTAL	**$4,428,219**

Option 2 Concept-Level Engineer's Estimate

Malta Complete Streets
Route 9, Malta, NY

M.J. Engineering & Land Surveying, P.C.
3/30/2017

OPTION 2: **Box Wideneing of Route 9 within the Transition Area limits**
Full-depth reconstruction of the Core Area
Landscaped raised median
Pedestrian accommodations

Item	Description	Unit	Option 2 Quantity	Unit Price	Option 2 Cost
201.06	Clearing & Grubbing	LS	1	**$10,000.00**	$10,000.00
203.02	Unclassified Excavation and Disposal	CY	13320	**$12.00**	$159,840.00
207.24	Geotextile Stabilization	SY	23720	**$1.00**	$23,720.00
304.12	Subbase Course, Type 2	CY	13600	**$35.00**	$476,000.00
402..	HMA	T	11270	**$110.00**	$1,239,700.00
407.0102	Diluted Tack Coat	GAL	6095	**$2.00**	$12,190.00
490.10	Production Cold Milling of Bituminous Concrete	SY	38710	**$3.00**	$116,130.00
608.0101	Concrete Sidewalks and Driveways	CY	1735	**$400.00**	$694,000.00
608.020102	Hot Mix Asphalt (HMA) Driveways and Bicycle Paths	T	255	**$105.00**	$26,775.00
609.0401	Cast-in-Place Concrete Curb Type VF150	LF	20560	**$25.00**	$514,000.00
611.0171	Planting - Major Deciduous Trees - 3 Inch Caliper Ball & Burlap	EA	204	**$250.00**	$51,000.00
619.01	Work Zone Traffic Control	LS	1	**$200,000.00**	$200,000.00
625.01	Survey Operations	LS	1	**$30,000.00**	$30,000.00
637.11	Engineers Field Office - Type 1	MNTH	24	**$1,500.00**	$36,000.00
699.040001	Mobilization (4% of Construction Cost)	LS	1	**$1.00**	$179,467.75

Sub Total	$3,589,355.00
Estimate Signage and stripes @ 5%	$179,467.75
Estimate Drainage @ 20%	$717,871.00
Construction Inspection/Support (15%)	$673,004.06
TOTAL	**$5,159,698**

APPENDIX A

DISPOSITION OF COMMENTS

Summary and Response to NYSDOT Comments on Technical Memorandum: Assessing the Geometric Fit of the Proposed Form-Based Code Street Cross-Section

NYSDOT Round 1 Comments Received April 5, 2017

[The responses in this table are correlated to the attached annotated comments]

Comment Number	Comment Overview (see attached for verbatim comments)	Team Response
1	Formatting	Noted
2	Clarify document title/purpose	Title will be changed to clarify.
3	What is curbing project?	Text will be modified to include box-widening/mill and overlay also
4	Timeframe reference is dated	Noted. The effort began in 2016 which is why the timeframe reflects that.
5	Location of median breaks	Team to provide station ranges where median breaks are proposed
6	Clarify location of sidewalk	Text will be reworked to clarify
7	Consistent use of terms	Shared use path will be the consistent term used
8	Road diet AADT thresholds referenced	This information will be included as a footnote in the memo
9	Regulation reference	Text will be corrected to include reference to the NYS Vehicle and Traffic Law
10	Design Criteria table clarification	Noted. Design Criteria is included in the tech memo attachments for both the Core Area and the transition area outside the core.
11	Define 'partially vetted'	Text will be added to explain that the Form Based Code (FBC) concept was vetted by the community, however a technical evaluation of the feasibility to implement has not been conducted until now. The purpose of this effort is to conduct a technical evaluation of the feasibility and to help address preliminary comments received by DOT on the initial FBC concept.
12	Design speed versus target speed discussion	Acknowledged. This information will be added as a footnote and would need to be discussed at the time of preliminary design and will consider community context and goals with current DOT policy. Note - this has been addressed footnote 4 in text and footnote 2 in the design table.
13	Design criteria table	Noted. Design Criteria is included in the tech memo attachments for both the Core Area and the transition area outside the core.
14	Attachment of typical sections missing	This information was included, but we will

		verify.
15	Reference a missing typical section	This information was included, but we will verify and modify reference as needed.
16	Reference a missing typical section	This information was included, but we will verify and modify reference as needed.
17	Use of consistent dimensions	This will be checked and modified as needed.
18	PROWAG standards for on-street parking	This information will be added and will need to be addressed at the time of design.
19	Location of curb ramps	This would be addressed during the design stage.
20	Existing roundabout concerns	Noted. The scope of this effort does not including addressing existing concerns with the existing roundabouts.
21	Accessible on-street parking	Noted and will be added as footnote. The concept will remain in tech memo for consideration by the advisory committee and Town. This would be determined at design stage and the addition of an ADA compliant space at the end of the on-street parking may be the solution.
22	Town preference regarding on-street accessible parking	Acknowledged. The concept will remain in tech memo for consideration by the advisory committee and Town. Subsequent adoption of PROWAG will require consideration during design.
23	Clarification of travel lane significance	Text will be reworked to clarify. If a driver has parked on-street and is exiting their vehicle, they will be in the travel lane. technical evaluation of the feasibility Subsequent adoption of PROWAG will require consideration during design.
24	PROWAG standards	Noted and will be added as footnote. The concept will remain in tech memo for consideration by the advisory committee and Town. Subsequent adoption of PROWAG will require consideration during design.
25-28	Cross slope	Noted and will be clarified. Without a survey of existing conditions, it is difficult to accurately determine. This would be determined at time of design and may influence cost of implementation.
29	Addressing the shoulder	It is likely that the shoulder would need to be reconstructed. However, that would be determined at the time of design.
30	Redesign of retaining structure	Text will be added to explain. The grade change beyond pavement width may require some retaining structures. This will be determined at time of design.
31	Use of word 'simply'	This will be removed.

STUDY TEAM RESPONSE TO NYSDOT ROUND 1 COMMENTS

32	ROW acquisition question	ROW acquisition is discussed on page 6 of the text memo. Text can be added to reference this. Some minor strip-takings may be required.
33	Question about why milling and paving is necessary	This is generally a preferred good practice that provides consistency from curb to curb
34	Cross slope for parking and travel lane	Text will be modified to explain possibly both, but more likely for the parking lane. The existing cross-slope would need to be verified during design.
35	ROW acquisition or easements	This would be pursued at the time of design along with opportunities to right size the roadway.
36	Will the FBC be revisited?	It is likely the Town may revisit the FBC possible at the design stage, especially in context of road diet.
37	Cost estimate	A preliminary cost estimate based on the available information will be included in this effort.
38	Number of areas identified	This will be corrected.
39	Reference to secondary access at Kendall Way / Route 9	This comment appears to be referencing a future loop road at the existing CVS connecting to the Parade Ground Village. (not the Shops at Malta). Text can be added to clarify.
40 - 42	Describe type of controlled access	Undetermined at this time. This would be explored during design stage. The intent is to identify access control to assist with U-turns throughout the corridor. It may also be necessary to have another controlled intersection to provide adequate pedestrian crossing according to NACTO guidelines. To be examined carefully during the design stage.
43	Use of parenthesis	Probably and parenthesis will be removed and replaced with likely
44	Number of location identified	This will be corrected.
45	Potential for additional roundabouts	Noted. Also see response to 40-41.

NYSDOT ROUND 1 COMMENTS APRIL 5, 2017

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TECHNICAL MEMORANDUM

Comment [rsc1]: Fyi – some formatting was altered – for an unknown reason – when we merged the files.

Comment [rsc2]: It is unclear as to what kind of document this is a Technical Memo "to." As a standalone, it does not provide the clarity as to what the next step(s) are, or what the options are.

FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA
OF THE TOWN OF MALTA AS A COMPLETE STREET

ASSESSING THE GEOMETRIC "FIT" OF THE PROPOSED FORM-BASE CODE STREET CROSS-SECTION

Overview

The Town of Malta developed and enacted a form-based code (FBC) plan for its downtown area[1]. The FBC was based on the adopted Downtown Plan, which amended the Town's Comprehensive Master Plan. The FBC created a "core area" along US 9 where land development would be more concentrated and compatible with new urbanism and smart growth principles. Although US 9 is classified as a core street in the FBC, proposed land use development is unable to fully conform to FBC regulations because of the way the road is presently configured. The purpose of the Linkage Study is to explore the feasibility of reconfiguring US 9 from a higher-speed suburban highway to a feasible complete street concept that is more in context with a hamlet or village setting. The purpose of this technical memorandum is to determine whether or not the desired complete street section pictured in the FBC Plan, or close variant thereof, can be accommodated without significant grade modification and largely within the confines of a repaving and curbing project. The physical and operational characteristics of US 9 are documented in a previously reviewed memorandum titled, *Transportation System Profile*.

Comment [rsc3]: What is a "Curbing" project?

The FBC Plan is consistent with current adopted regional plans and policies. New Visions 2040 – the region's long-range transportation plan – encourages transportation investment that is based on a complete streets framework which supports the convenient and safe travel of all people – of all ages and abilities as appropriate to a community's context. New York's complete streets policy – described in New York's Complete Streets Act signed into law by Governor Cuomo on August 15, 2011 – states the same principle. In recognition of the slowing of VMT growth in the 21st century, NYSDOT design manual and other resources encourage designing for non-auto based transportation alternatives, including the right-sizing of roadways instead of expanding road capacity just for automobiles[2]

Candidate Complete Street Sections

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[1] *Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets, all of which combined create a walkable community. Conventional codes, on the other hand, primarily seek to control the land and development density without regard for the resulting built environment. Conventional codes tell decision makers what not to do. Form-based codes tell what must be done to achieve a community plan. Form-based codes discourage sprawl by encouraging people to walk to where they live to where they work to where they shop and to where they play. Form-based codes require a well-designed complete street to thrive.*

[2] *The NYSDOT* ***Complete Streets Report*** *(February, 2014) highlighted several projects that advanced complete street principles across New York State. Major improvements to NY 347 in Port Jefferson, NY 12A in the Town of Chenango, and NY 11 in the Village of Canton transformed those roadways from auto-oriented highways to lower-speed streets serving the community-building objectives of those communities. The report also credited CDTC's Linkage Program and complete streets working group of linking the highway design process to regional and community plans. The proposed US 9 project is just another example of advancing complete streets policy in New York.*

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The segment of US 9 examined in this study extends roughly 1.8 miles between Cramer Road on the north end and Knabner Road on the south end. The 0.6 mile section between the north end of Ellsworth Commons near Collamer Drive and Saratoga Village Boulevard is considered the *core area* of the corridor. The sections of roadway to the north and south of the core area are considered *transitional*. The core area is where land-use and street function is more likely to occur in the critical short-term. For this study, short-term is defined as the ten year period 2016-26. Map 1 shows the study area for this complete street analysis.

Comment [rsc4]: This is already dated

The Proposed FBC Complete Street Description

The complete street cross-sections for the core and transition areas of the corridor that were adopted as part of the Form-Based Code Plan are shown in Figure 1.

The *core area* cross-section would maintain four 11-foot travel lanes through the corridor. The existing two-way turn lane would be converted to a raised landscape or decorative hardscape median to separate directional traffic, manage private and public property access, and to provide refuge for pedestrians crossing the roadway. The proposed design calls for two 8-foot parking lanes, a 12-foot "cycle track" (termed a *separate bikeway* in NYSDOT's Design Manual) on the west side of US 9, 6-foot planting areas and 10-foot sidewalks on each side of the roadway. The highway right-of-way width required for the full build-out that accommodates all of the proposed complete street treatments is approximately 116 feet. The width of the highway section, including travel lanes, median, and parking is approximately 72 feet.

Comment [rsc5]: This is the predominate section, yet are there not locations where the median is not present – to allow for full access to abutting properties?

The *transitional* cross-section would also maintain four 11-foot travel lanes, and would retain the flush median treatment to accommodate left turning traffic. The proposed concept calls for an 8-foot shoulder, 6-foot sidewalk, and 10-16 foot vegetation strip on each side of the roadway. A 12-foot multi-use trail would be provided on the west side of the corridor. The full build-out width within the *transitional* area is equal to the width (116') required in the core area. Consistent with the study's adopted principles, the plan calls for eventually extending the raised median and other complete street features through the transitional areas as well.

Comment [rsc6]: Appears to be only on the east side

Under the FBC Plan proposal, bicycle travel in the core area would be accommodated with a "cycle track" or separated bicycle path located on one side of US 9, and by a multi-use path through the transitional area. Alternative bicycle treatments, like directional separated facility on each side of the corridor and other operational designs, will be evaluated in any future design effort.

Comment [rsc7]: Figure 1 refers to it as a Multi-use Trail. Suggest consistency be applied throughout the document.

Road diet options that reduce pavement width through the corridor will also be explored in the design study. It looks like US 9 traffic volumes are **sufficiently low enough** to satisfy the warrants for "right-sizing" the highway, at least in one direction through the corridor[3].

Comment [BA8]: It should be noted that NYSDOT's official threshold for a road diet is 15,000 AADT on an undivided four lane highway, (per Appendix A of Chapter 18 of the Highway Design Manual). Even if we allow justifications for non-standard design.

[3] *The FBC plan does not call for right-sizing at this time, though it may be possible. According to NYSDOT, FHWA, and other sources, dieting could work where daily demand is below 20,000 vpd. According to CDTC's Arterial Capacity Guidelines, right-sizing can be considered if peak direction demand is below 1,300 vph during the peak travel hour. CDTC's STEP Model estimated average weekday demand in 2025 for the corridor to range between 18,000 and 23,000 vehicles per day, with peak direction demand to range between 700 and 1,300 vehicles per hour. With well-managed access, right-sizing could work, but will require additional review during design.*

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Issues Raised by NYSDOT's Comments on the Form-Based Code Street Proposals

Advancing the FBC complete street concept would require confirmation that the typical section(s) would fit in the available right-of-way and/or space between existing buildings to accommodate the proposed median, travel lanes, bicycle facilities, and sidewalks. Since horizontal and vertical features differ through the corridor, the evaluation must ensure that the proposed treatment would fit throughout the corridor. This effort addressed four issues that NYSDOT raised at the time the FBC plan was prepared:

1. *The ability to safely accommodate on-street parking for all users:* NYSDOT noted that the shoulder cross-slope in parts of the corridor may be too steep to allow driver and/or passenger doors to open easily (doors hitting or rubbing the pavement or newly installed curbing). Long-term, ADA cross-slope requirements of the parking lane might be an issue as well. High operating speed needs to be addressed.

2. *The location of existing buildings at Ellsworth Commons may constrain the complete street "fit":* NYSDOT noted that any evaluation should confirm both horizontal and vertical fit by demonstrating that sufficient right-of-way is available to accommodate all proposed complete street features, and to determine whether grading is needed to tie in any vertical difference created between the proposed sections and the existing ground and building floor elevations.

3. *Adequacy of the existing closed drainage system through the core area:* NYSDOT is concerned that individual drainage systems that have been constructed may not be sufficient to handle all the drainage once surrounding parcels are built out. While quantifying the cumulative drainage needs for the entire downtown area goes beyond the scope of the Linkage Program, a planning level analysis will be conducted to give us some idea of the physical impacts of installing a closed drainage system would have on US 9~~.~~, and the drainage outlet facilities.

4. *Installing a raised median will impact left-turning traffic:* NYSDOT noted that a method for allowing left-turns and u-turns must be evaluated, and that any treatment must be consistent with New York's Uniform Vehicle Code, NYSDOT Design Manual, and other relevant regulation and design guidance. NYSDOT expressed some concern with the access management strategies highlighted in the FBC Plan, noting that a grid system of local streets around US 9 would be critical to the construction of a raised median.

Comment [rsc9]: Not sure what this is . . . . Perhaps reference was intended to be Manual of Uniform Traffic control Devices (MUTCD)?

Possible Outcomes

This technical memorandum covers Items 1, 2, and 4 listed above. The planning level analysis of drainage impacts will be conducted once the findings of the "fit" analysis have been reviewed. This analysis will help evaluate the feasibility of the FBC street proposal. The test of feasibility may yield one of several outcomes:

- The desired complete section pictured in the FBC study can be accommodated in the study area largely within the confines of a repaving and curbing project without significant grade manipulation or changes to the existing closed drainage system.
- The desired section can be accommodated horizontally, but elevations, drainage modifications, or other factors necessitate significant roadway reconstruction in order to implement the ~~section~~desired FBCsection.

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- Major features of the desired section cannot easily be accommodated within the corridor, and removal/reduction of lanes, or removal of other features, would be required.
- Changes to the cross-section are not possible. Under this condition, operational and regulatory treatments that will help improve the walking and cycling environments will need to be identified.

Technical Material Compiled for Geometric Evaluation

1. Design Criteria tables (see Attachment A) showing standard and proposed values for various design elements. At this time, two alternatives are shown, one representing the existing highway cross-section, and the second showing the FBC, or complete street, alternative. The complete street alternative was partially vetted at the time the FBC Plan was prepared. The core area extends roughly from Ellsworth Commons on the north to Saratoga Village Boulevard on the south. Design criteria are offered for the following conditions[4]:

   - Core area with a 30 mph target, or design, speed. Pedestrians to be accommodated with a sidewalk on both sides of US 9. Cyclists to be accommodated with a separated bikeway, often called a cycle track, on the west side of the road.
   - Transition area with a 40 mph target speed. Sidewalk on one side and wide multi-use path on the other.

2. Using the FBC Plan as the context, typical sections showing pavement cross-slopes and other criteria for four locations from north to south as follows:

   - Sta. 28+50 (GP 2 of 9, Typ Sect 1)located outside the core area north of Stonebreak Road
   - Sta. 41+00 (GP 3 of 9, Typ Sect 2)located inside the core area north of Saratoga Village Boulevard
   - Sta. 65+00 located inside the core area in front of Ellsworth Commons
   - Sta. 99+00 located outside the core area south of Cramer Road

3. Existing Conditions and Proposed General Plans (see Attachment B). Each plan set features the underlying aerial images, approximate right-of-way lines, driveways, and other features for the existing and proposed FBC roadway. Right-of-way boundaries are based on current tax maps and Exit 12 Reconstruction design plans. Within the Core Area, the preliminary raised median layout accommodates left-turning traffic and U-turns at key locations as depicted on the Proposed Condition Plans.

4. A series of photographs showing the elevation differences in the core area of the corridor.

Comment [rsc10]: a) See comments – filename <<des crit rt 9 malta fbc . . .. . .pdf>>.b) Design Criteria provided appears to be only for core area (Saratoga Village to Collamer – wouldn't there be a table of Design Criteria for the transitional area too?

Comment [rsc11]: "partially vetted" meaning?

Comment [rsc12]: The design speed is either: maximum functional class speed or a speed based on the anticipated (post-construction) off-peak 85th percentile speed within the range of functional class speeds.

The Regional Traffic Engineer should concur with the design speed to be used for selection of the other critical design elements. *Has this occurred as of yet?*

Comment [rsc13]: Where's the associated Design Criteria table?

Comment [rsc14]: Where is this? Attachment B?

Comment [rsc15]: (GP 5 of 9, Typ Sect 3A? or 3B?

Comment [rsc16]: (GP 8 of 9, typ sect 1?)

Comment [rsc17]: The dimensions on some of the plan sheets do not match the typical sections. A QC review needs to be done.

[4] *The approach to street design is changing. Conventional street design, which focuses largely on forgiving driver error and moving cars rather than people, is grounded in a strong road hierarchy with wide roads, broad intersections, and high posted speeds. As NACTO, ITE, and others explain, design elements under a conventional design process are based on "how fast drivers are actually driving rather than how fast drivers ought to actually drive." A road design that fosters high speed is not the kind of road that supports a town center. As an alternative approach, ITE recommends using "target" speed in the design process. Target speed is the speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land use to provide a safe environment for pedestrians and bicyclists. For a town center, target speed should be as low as possible, but not exceed 35 mph.*

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Using the Existing Shoulder for Parking

At the time the FBC was adopted, NYSDOT expressed concern about parking in the corridor. As part of this study, CDTC staff field-tested the shoulder in front of Ellsworth Commons to determine the ability of vehicles to safely and comfortably park. Using a two-person team, CDTC parked a passenger car, opened both driver and passenger doors, left the car, and walked to the sidewalk. Opening the doors did not present a problem in terms of parking area width or cross slope. Walking to the sidewalk required staff to cross a three-foot unpaved area. **Shoulder width is not ADA compliant** and **curb ramps only exist at controlled intersections**.

The speed of traffic is also a concern, but recent speed observations in the area suggest that operating speeds have been decreasing over the last several years. NYSDOT reported a reduction in speeds near Adirondack Trust, with the 85th percentile speed dropping from 44 mph in 2008 to 37 mph in 2016. In an October 2016 field visit, CDTC collected speed data by observing the speed-feedback sign in front of Ellsworth Commons – results were consistent with NYSDOT findings where average speed calculated to 34 mph and 85th percentile speed calculated to 39 mph. With continued enforcement and implementation of other complete street treatments, traffic speeds are expected to decrease further.

NYSDOT has been working with the Town to develop an interim parking arrangement. In an effort to assist the implementation of the FBC vision for the corridor, the Department, pointing to the Town's success in reducing vehicle operating speed, recently agreed to allow the Town to implement on-street parking in front of Ellsworth Common, and will consider parking in adjacent portions of the US 9 Core Area.

On-street parking is accommodated within the complete street plan and will have a more user-friendly feel compared to the current (interim) design. The complete street design will comply with NYSDOT design standards for maximum cross slope within a parking lane.

Comment [BA18]: If this statement is referring to PROWAG standards for on-street parking (not shoulder width), that should be clarified. There are no ADA standards for "shoulder width" that I am aware of. PROWAG guidelines for on-street parking state that when the adjacent walkway is 14' or more, accessible parallel parking spaces will include an access aisle of at least 60 in (5ft). When the adjacent walkway is less than 14', accessible spaces should be located at the ends of each block. There should be one accessible parking space in every 25 parking spaces up to 100 spaces, and one in every 50 spaces after 100 spaces.

Comment [BA19]: Where else should curb ramps be? Suggestions?

Comment [rsc20]: One would think that addressing speeds thru the roundabout at Routes 9 and 67 would influence speeds in that general vicinity of the corridor, having the potential to decrease motor vehicle accidents and improve the ability of pedestrians to navigate the roundabout. It is surprising that the document does not mention this at all given the past concerns the Town has expressed about that roundabout.

Conducting the Evaluation for Geometric Fit

The feasibility of fitting the typical complete street sections in both the core and transitional areas within available right-or-way was evaluated using the design criteria shown in the Design Criteria Tables, (based upon NYSDOT Highway Design Manual, chapter 2), ADA accessibility guidelines, and Chapter 18 of NYSDOT's Highway Design Manual. Feasibility involved the examination of several factors including target speed, horizontal and vertical features, property access, drainage, and storm-water management. The process was fairly straightforward, identifying applicable design standards and guidelines. Once design criteria had been established, transportation engineers evaluated the proposed sections against the design criteria to determine how well the proposed sections would fit within the existing right-of-way. The process allowed engineers to determine what horizontal and vertical adjustments would be required to meet design requirements. **The evaluation relied on existing data, field information, and standards – no new data was generated for this analysis.** The study team and advisory committee fully expects that additional data and analysis will be required in order to confirm findings derived from this study.

NYSDOT ROUND 1 COMMENTS APRIL 5, 2017

Key findings related to the geometric fit assessment show:

- Sufficient right-of-way width to accommodate all complete street treatments included in the FBC highway sections is **not** available along much of the corridor. The right-of-way mapping shown on the Proposed General Plans identifies minor strip-takings along approximately 7,500 linear feet of the southbound right shoulder (ranging from 5 feet to 25 feet, with most takings less than 15 feet wide)and 6,300 linear feet along the northbound right shoulder (from 2 feet to 15 feet, with most takings less than 10 feet wide) that may be necessary to accommodate sidewalk and landscaping features. A road diet that eliminates or repurposes an existing travel lane would eliminate the need for these strip-takings, but would negatively impact the ability to provide for u-turns in one or both directions.
    - ~~The width of strip takings along the southbound shoulder range from 5 feet to 25 feet, with most takings less than 15 feet wide.~~
    - ~~The width of strip takings along the northbound shoulder range from 2 feet to 15 feet, with most takings less than 10 feet wide.~~

- In accordance with Town Code, the existing facilities within the core area already have sufficient and properly designed ADA compliant accessible parking at the rear of buildings. **Providing accessible on-street parking is typically not the industry standard**, but the possibility will be assessed during final design. Assuming the Town does not want to remove the existing curbed sections from the FBC in the core area, **those who need accessible on-street parking would be required to walk between parked cars and the travel lane to access an ADA compliant ramp.** The existing and proposed shoulder width is insufficient to do this. A five percent cross-slope is 'adequate', but a gentler slope may be desirable based on the following guidance and standards:
    - NYSDOT's *Highway Design Manual* specifies the acceptable range for parking lane cross-slope to range between 1.5 and 5.0 percent (HDM Section 2.7.2.2).
    - The AASHTO *Guide for Geometric Design of Highways* shows the acceptable cross-slope range at 2.0 to 6.0 percent.
    - ADA PROWAG standards recommend a maximum parking cross slope of 2.0 percent. A 2.0 percent shoulder cross slope is likely to affect the vertical profile of US 9.

- Figure TYP-02 (see Attachment B) shows the critical existing elevation on the east side of US 9 in the vicinity of Ellsworth Commons to be the floor level of the existing buildings. The intent is to minimize reconstruction and impacts to the existing streetscape by adjusting cross slopes within the permissible limits to address the vertical fit. Box-widening, drainage and other complete street elements would result in a +/-6 inch cut at the curb line. In order to maintain the existing cross-slope across travel lanes and median while maintaining the critical elevation at the existing buildings, a six-inch cut would be required across US 9. Construction of a two percent cross-slope curb-to-curb (specifically to provide a 2% parking lane cross-slope), would likely require a larger cut. A six-inch or larger cut would most likely require full-depth reconstruction in order to provide necessary structural pavement strength (based on available information). An existing pavement analysis would be done during preliminary design to verify the integrity of the remaining section if +/- 1" of existing asphalt was removed. Although the precise limits of reconstruction cannot be assessed until survey is available during preliminary design, the area that may be subject to reconstruction falls approximately between Sta. 59+15 and Sta. 72+80. (~ 1,350').

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Comment [BA21]: In a recent court case in California, the Ninth Circuit Court (Fortyune v. City of Lomita) held that cities should be proactive in creating accessible on-street parking, even if design standards are not available. The Supreme Court denied the city's petition for a writ of certiorari in 2015. The case applied to diagonal parking, not parallel, but it may be wise to err on the side of caution and include accessible on-street parking if at all feasible.

Comment [rsc22]: Does the Town have a preference now?

Comment [rsc23]: Suggest clarifying this phrase – unsure of how travel lane is pertinent.

Comment [BA24]: In order for on-street parking to be considered "accessible" by PROWAG standards, there must be either a 5' access aisle that "does not encroach on the travel lane", or the spot must be located at the end of a block near the curb ramp and there must be no obstructions to the operation of a wheelchair lift on the sidewalk. These requirements depend on the width of the sidewalk. See the PROWAG technical requirements (section R309.2) here: https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements

Comment [rsc25]: 5% cross slope is adequate for what?

Comment [rsc26]: In what way?/manner?

Comment [rsc27]: Cross slopes of ??

Comment [rsc28]: Is this desired?? Seems as if the prior bullet was advocating a lesser cross slope

Comment [rsc29]: Does shoulder enter into the 'picture'?

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- Raising the elevation along the existing (east-side) curb line and shoulder to provide a two percent cross-slope might be possible. Given the data available to the study team, it looks like that option could encroach on the finish floor elevation of buildings located adjacent to the three existing driveways. The analysis suggests that the potential exists for substantial disruption to existing structures, and some-type of retaining structure might be required on the west side of US 9. A more rigorous engineering analysis through the project design process will be required to determine the best way to accommodate vertical requirements of the project. At this time, however, it seems a curb-to-curb cut would cause the least disruption to existing business investment. Shrinking the width through right-sizing would not affect vertical requirements and impact. The visual appeal and fit of vertical impact and mitigation will have to be evaluated during preliminary engineering. See Attachment C for illustration. depicting . . . . .

Comment [rsc30]: For what reason/purpose?

Bottom Line Assessment

Construction of the US 9 core and transitional sections identified in the Town's FBC **south of the US 9/NY 67 roundabout** will simply require a box widening on both sides of US 9 in order to provide adequate pavement width for complete street features. The proposed pedestrian and bicycle facilities will be sloped toward the shoulder as shown in typical sections. Ideally, travel lanes and center turn lane in the transitional area will be milled and paved with the profile of the roadway remaining the same. Constructing to a two percent cross-slope if desired can be achieved using this technique. Throughout this part of the corridor, sufficient public property is available (or easements can be obtained) to accommodate the grading needed to tie in the vertical difference created by the proposed sections and the existing ground.

Comment [rsc31]: ??

Comment [rsc32]: No right of way acquisition required?

Comment [rsc33]: Why?

Comment [rsc34]: For travel lane and parking lane?

Comment [rsc35]: Will easements really be acceptable to all parties? Isn't acquisition required?

Based on the information available to the study team, fitting the proposed section in the corridor **north of the NY 67 roundabout** will be a bit more difficult. In the core area where existing development is close to US 9 and the existing pedestrian space, grading will not be an option to tie together the proposed section to the existing ground. In this case, either a full depth reconstruction across the full width of the roadway or reconstruction of the sidewalk area in front of Ellsworth Commons (with profile adjustment) will be required. The limits of US 9 that may be subject to full depth reconstruction extends from Station 59+00 to Station 73+00. The limits of profile adjustment will need to be verified during preliminary design after precise existing elevation data is obtained.

Comment [rsc36]: This is with the assumption that there is not a revision to the typical section developed for/in the FBC – right? Leading to the question, does that section need to be revisited?, and the varied elements prioritized? Allowing a project that may have a greater sense of being "realistic."

Comment [rsc37]: Wouldn't a cost estimate help discern if someone (i.e. the town) wanted to progress a project?

Managing Access in the Corridor

Implementing the FBC complete street alternative requires an effective access management strategy. For the last ten years, the Town of Malta -- in its *Comprehensive Plan, US 9 Plan, FBC Plan*, and most recently in the *Town-wide GEIS* – recognized the critical importance of managing access on all major roads throughout the town, especially on US 9. All four plans acknowledge that without a pro-active access management protocol, continued development in the Town will place a significant burden on roads like US 9 – providing unchecked access to adjacent property that will challenge the ability of major arterials to efficiently move people and goods. These studies have also underscored the importance of formulating comprehensive arterial management protocols for the Town's arterial corridors to preserve or restore or preserve the functionality as well as the economic viability of these major corridors. Town policy has promoted comprehensive arterial management strategies that include properly located driveways, shared access, and connector streets. Specific guidelines have been set forth in the Town's *Highway Access Planning Guide* and *Form Based Code Plan*.

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As shown on Map 2, the FBC Plan has specifically laid out a strategy for constructing a grid system of local roads for four areas in the US 9 and NY 67 corridors to minimize driveways intersection the highways:

Comment [rsc38]: ?? 5 are described

- *Shops at Malta*: This large mixed use retail and residential development is located on the northwest corner of US 9 and Dunning Street. Full access to the site on US 9 is limited to the signalized Kendall Way/US 9 intersection. Full access to Dunning Street is provided at the Route US 9/NY 67 roundabout. Raised medians on NY 67 and at the US 9 approach to the US 9/NY 67 roundabout limit other access to right turns only.

Comment [rsc39]: What about the 'secondary' access from Kendall Way/Rt 9 to the east, tying into dunning adjacent to the church?

- *Saratoga Village & Blacksmith Square:* A mixed use parcel located on the southwest corner of US 9/NY 67 intersection. Professional office, apartments, hotel, and small retail are served by a grid street system. Uncontrolled access is currently provided at Blacksmith Drive and US 9, at Saratoga Village Boulevard and US 9 or at the roundabout at Blacksmith Drive. Saratoga Village Boulevard is a good candidate for a second controlled access point.

Comment [rsc40]: Describe what a controlled access point is – RAB or Traffic Signal?

- *Parade Ground Village:* Parade Ground reconfigured with retail fronting US 9 and Dunning Street. Townhouses provide transition between single-family homes and commercial uses. Connections to these properties are being provided by a loop road connecting US 9 at Hemphill Place and Hemphill Place at Dunning Street (currently uncontrolled). Opportunities for creating another controlled intersection either at US 9 at Hemphill Place or Hemphill Place at Dunning Street will have to be assessed in a separate effort.

- *Northern Gateway & Civic Complex*: The plan calls for the reconfiguration of the Malta Town Complex to include community-focused and office-related buildings, including an addition to Town Hall. Currently, access to this area is only through uncontrolled intersections. Realigning Helen Drive and Raymond Drive could provide a controlled access opportunity.

- *Southern Gateway:* New commercial development preserves open space and respects Stonebreak Road right-of-way. Access to property and local streets provided through Stonebreak Road roundabout. A second controlled access could be provided at Landau Boulevard.

Candidate Locations for Additional Controlled Access in the Corridor

Currently there are three controlled intersections in the corridor:

- US 9/NY 67 – roundabout
- US 9/Kelch Drive – traffic signal
- US 9/Stone Break Road – roundabout

With a raised median, consolidation of driveways, and continued town center development, additional controlled intersections will be necessary to maintain reasonable property access, create a safer traffic environment, and provide safe and convenient pedestrian crossing locations. NACTO recommends that pedestrian crossings be provided every 800-1,200 feet in town centers. The study team has identified five candidate locations:

Comment [rsc41]: How are these intersections/locations currently 'controlled"? and what is the proposed method of controlled access?

- US 9/Collamer Drive

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- US 9/Ellsworth Commons Main Entrance/Town Complex
- US 9/Hemphill Place
- US 9/Saratoga Village Boulevard
- Dunning/Hemphill Place

Although decisions about the type of control are premature, consideration should be given to roundabouts at US 9 intersections with Collamer Drive and Saratoga Village Boulevard, and the Dunning/Hemphill intersection. Roundabouts at these locations would facilitate u-turns in the corridor and facilitate enhanced pedestrian mobility opportunities.

Comment [rsc42]: What about the other two locations (US 9/Ellsworth Commons Main Entrance/Town Complex and US 9/Hemphill Place)?

Town's Approach to Implementing Access Management Treatments Called for in the FBC Plan

For each proposed development, arterial management treatments shown on Map 2 are first discussed early in the project review process in a meeting of the Town staff. The purpose of this meeting is to discuss pre-application materials related to a specific development proposal. At this point in the site plan review process the applicant is advised of access management principles for the corridor, and the expected responsibilities the applicant has in integrating the plan into the development project. The Town of Malta uses a flexible approach with working with developers on locating driveways, cross-easements, and participating in construction of service roads so that decisions can be made in a mutually beneficial way.

Successful plan implementation requires public sector flexibility that is grounded in strong planning guidance that is sensitive to private sector challenges. Municipalities, the Town of Malta included, depend on private sector creativity to design development projects that "fit" into community plans. It is not always possible or desirable to prescribe precisely how access to development will be provided in advance of knowing what kind of development will be proposed. With the plan shown on Map 2, the town has taken the critical first step in providing guidelines – some specific and some general – so that developers can design a project that is consistent with the town's vision for the corridor.

Successful private/public partnerships require both flexibility and a strong planning framework. CDTC's experience working with various municipalities in the region has proven high quality results can be achieved using this framework. A very good example of this is the Town of Colonie's Airport Area FGEIS where multiple projects have been designed using this framework. Managing access has been a critical objective of the GEIS – a CDTC review indicates that nearly 75 percent of all Wolf Road businesses have access to a controlled intersection, eliminating the need for more than 600 peak hour trips to travel Wolf Road.

Town of Malta planning initiatives have benefited the US 9 corridor as well. Currently, roughly 35 percent of US 9 properties have access to either a controlled intersection or other street intersection. With implementation of the FBC access plan, roughly 75-80 percent of US 9 properties will have access to a controlled intersection. Achieving this level of access control will allow construction of a raised median through the corridor, while allowing excellent access to businesses and other property through a grid system of local streets. Creating common access for properties on the west side of US 9, north of the town complex, may not be possible without redevelopment. Areas like this will either require a break in access or opportunities for u-turns.

U-turn Considerations

A well-designed raised median is one of the most important tools to create a safe and efficient highway system, and is an integral component of a corridor that manages access and minimizes vehicle and

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pedestrian conflicts. However, median openings may be required from time-to-time to allow access to businesses or other property. The placement and design of median openings to provide direct full access to US 9 or to reverse direction is a key consideration in implementing the FBC complete street concept.

Based on a comprehensive review of the FBC access management plan for the US 9 corridor that included field visits and technical meetings, the Proposed General Plans show five locations were where median openings may be necessary (either through a median cut or u-turn) in order to provide access to properties that (probably) will not have access to the local grid street system or controlled intersections, ~~either through a median cut or u-turn~~:

Comment [rsc43]: ?? why parenthesis?

Location 1: Sta. 38+00, (Sht 3 of 9), Ambulance Corps south of Hemphill Place on the east side of US 9
Location 2: Sta. 43+00 (Sht 3 of 9), , Hemphill Place on the east side of US 9
Location 3: Sta. 63+00, Sht 5 of 9), bank located north of the NY 67 roundabout on the west side of US 9
Location 4: Sta. 68+50, (Sht 5 of 9), Ellsworth Commons main entrance on the east side of US 9
Location 5: Sta. 71+50, (Sht 6 of 9), Group of buildings at Raymond Drive on the west side of US 9

Rather than provide median cuts for each of these six locations, the study team recommends the following approach:

Comment [rsc44]: Only 5 are idientified

1. Use existing and planned roundabouts in the corridor to reverse direction on US 9. To make this work, additional roundabouts at Ellsworth Commons and Saratoga Village Boulevard that provide access to the local grid street system should be considered as project design moves forward.
2. Provide a median cut at the Ambulance Corps to allow full access to US 9. A specialized median treatment (contrasting texture/color) with a mountable curb is recommended.
3. If necessary, consider supplementing with 2-3 strategically located median breaks to allow u-turns for passenger vehicles and bicycles. Based on a review of AASHTO and other design guidance, providing u-turn treatment in the proposed reconfigured US 9 corridor may be difficult with the proposed geometry, but it ~~is possible~~ may be possible.[5].

Comment [rsc45]: a)SVB already identified as a RAB – see top of page 9; b) this will lead to 3 new RABs on Route 9

[5] *NYSDOT Design Manual refers to the AASHTO Green Book for guidance on u-turn design treatment. Based on AASHTO and other State DOT practice, an 18-foot median plus a "flare" on the receiving roadway would be required in order to accommodate u-turns under proposed geometric conditions. However, an on-road field test on Wolf Road in the Town of Colonie suggests u-turns can be accommodated with a median as narrow as 12 feet (with parking prohibited on the receiving road). If this design treatment is pursued, a design exception would be required.*

Study Team Disposition of NYSDOT Round 2 Comments

Malta Route 9 Linkage Study
Response to NYSDOT Round 2 Comments Received
Response Document # 1: Annotated Memorandum
July 7, 2017

Numbered responses correspond to numbered comments on the attached memorandum:

1. NYSDOT comments and their disposition will be sent to the advisory committee. A reference to all advisory committee comments and their disposition will be added to the final document, and will be included in an Appendix to the report. NYSDOT's second round of comments will be referenced as clarifications.

2. You are correct, the sentence remains confusing. It will be replaced with: ".....and largely within the confines of a preservation project." A footnote will be added to define "preservation project" as follows: "A preservation project is typically limited to resurfacing but may include some minor geometric modifications, drainage improvements, ADA compliance work, and landscaping. While creating a complete street through preservation project would be the most economical, some limited major reconstruction work may be required to meet geometric requirements, and will be identified in the study."

3. Noted. Footnotes should not be carried over.

4. Noted. The identification of the typo was missed.

5. Good point. Text will be edited to read, ".....equal to the 116-foot width required in the core area."

6. Noted.

7. Not sure how this happened. The following suggested additions will be added:
    - Page 5, "and the drainage outlet facilities"
    - Page 6, "the desired FBC section"
    - Page 8, in a footnote, "based on NYSDOT Highway Design Manual, Chapter 2"
    - Page 8, various text insertions on all four bullet points
    - Others as discovered

8. Noted. We'll check the section, and add "Title 7, Article 8" or whatever it is. Of course MUTCD is included in "other relevant regulation", but we'll explicitly cite it.

9. Sentence incorrectly references "non-standard design". It should reference the framework. Remove and replace with something like this: " Even though parts of US 9 carries more than 15,000 vpd, there is potential for right-sizing based on directional flow and other factors. This will require further and analysis and discussion as the planning and design process proceeds." (The *Transportation System Profile* for the study suggests this possibility).

10. Noted. Will add the phrase for clarity. "Has" will be changed to "had".

11. Noted.

12. Noted.

13. How about, "For example, exiting a parked vehicle from an on-street space will require a driver to encroach or enter the adjacent travel lane."

14. Adequate to use the shoulder as a parking lane. Further, it means that the cross-slope for parking meets NYSDOT's current minimalist guidelines.

15. Adjusting shoulder cross-slope

16. Yes, if cost is a critical factor. (Personally, I think the cross-slope of the entire road from center-line to curb-line should not exceed 2 percent, similar to Wolf Road).

17. Willing to adjust to meet recommended PROWAG standards

18. Difference in elevation between face of building and desirable pavement elevation (to meet required cross-slope). I'll ask MJ to clarify.

19. Reference to page 6 will be removed, and a note indicating strip-takings may be necessary will be added.

20. Most of this is public land where easements should be possible. But, let's just call it acquisition to make things simpler.

21. To the extent a diet might be possible, reducing the number of lanes (even one) can minimize or even eliminate right-of-way acquisition. Of course, this would incur other costs related to lane removal, etc. Such an examination would also consider the sizing of certain complete street elements. This is a task for another day. I think we can add a footnote in this regard.

Comments from R. Cherry - 06/26/2017.
NOTE: to obtain a full picture, there is the need to a) refer to the initial comments made 4/5/17, b) the comments on the disposition of comments, and c) the comments below.

1

FEASIBILITY OF RECONFIGURING US 9 IN THE DOWNTOWN CORE AREA OF THE TOWN OF MALTA AS A COMPLETE STREET

A TECHNICAL MEMORANDUM

ASSESSING THE GEOMETRIC "FIT" OF THE PROPOSED FORM-BASE CODE STREET CROSS-SECTION

Last Updated May 31, 2017

is this "and" or "and/or" or is it "or"?

2

Overview

The Town of Malta developed and enacted a form-based code (FBC) plan for its downtown area[1]. The FBC was based on the adopted Downtown Plan, which amended the Town's Comprehensive Master Plan. The FBC created a "core area" along US 9 where land development would be more concentrated and compatible with new urbanism and smart growth principles. Although US 9 is classified as a core street in the FBC, proposed land use development is unable to fully conform to FBC regulations because of the way the road is presently configured. The purpose of the Linkage Study is to explore the feasibility of reconfiguring US 9 from a higher-speed suburban highway to a feasible complete street concept that is more in context with a hamlet or village setting. The purpose of this technical memorandum is to determine whether or not the desired complete street section pictured in the FBC Plan, or close variant thereof, can be accommodated without significant grade modification and largely within the confines of a repaving and box widening/mill and overlay project (curbing project). The physical and operational characteristics of US 9 are documented in a previously reviewed memorandum titled, *Transportation System Profile.*

The FBC Plan is consistent with current adopted regional plans and policies. New Visions 2040 – the region's long-range transportation plan – encourages transportation investment that is based on a complete streets framework which supports the convenient and safe travel of all people – of all ages and abilities as appropriate to a community's context. New York's complete streets policy – described in New York's Complete Streets Act signed into law by Governor Cuomo on August 15, 2011 – states the same principle. In recognition of the slowing of VMT growth in the 21st century, NYSDOT design manual and other resources encourage designing for non-auto based transportation alternatives, including the right-sizing of roadways instead of expanding road capacity just for automobiles[2]

footnote carried over to bottom of next page?

3

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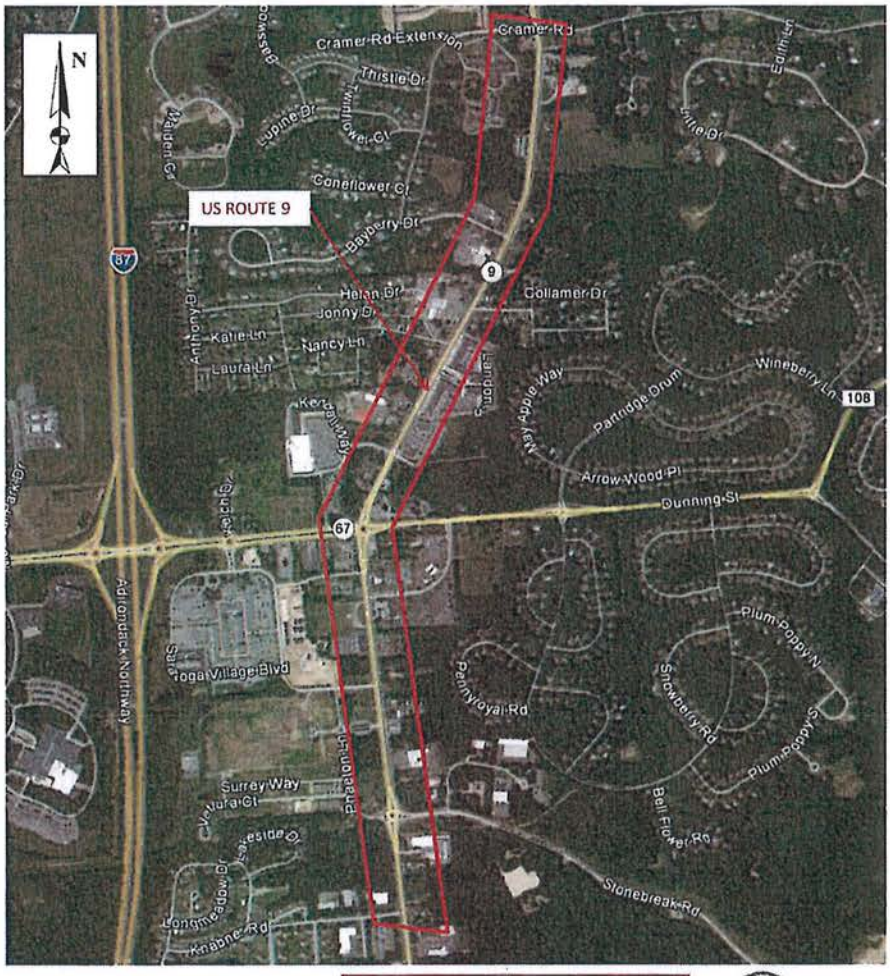
[1] *Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets, all of which combined create a walkable community. Conventional codes, on the other hand, primarily seek to control the land and development density without regard for the resulting built environment. Conventional codes tell decision makers what not to do. Form-based codes tell what must be done to achieve a community plan. Form-based codes discourage sprawl by encouraging people to walk to where they live to where they work to where they shop and to where they play. Form-based codes require a well-designed complete street to thrive.*

[2] *The NYSDOT* ***Complete Streets Report*** *(February, 2014) highlighted several projects that advanced complete street principles across New York State. Major improvements to NY 347 in Port Jefferson, NY 12A in the Town of Chenango, and NY 11 in the Village of Canton transformed those roadways from auto-oriented highways to lower-speed streets serving the community-building objectives of those communities. The report also credited CDTC's Linkage Program and complete streets working group*

Candidate Complete Street Sections

The segment of US 9 examined in this study extends roughly 1.8 miles between Cramer Road on the north end and Knabner Road on the south end. The 0.6 mile section between the north end of Ellsworth Commons near Collamer Drive and Saratoga Village Boulevard is considered the *core area* of the corridor. The sections of roadway to the north and south of the core area are considered *transitional.* The core area is where land-use and street function is more likely to occur in the critical short-term. For this study, short-term is defined as the ten year period 2016-26. Map 1 shows the study area for this complete street analysis.

Map 1 – STUDY AREA LOCATION MAP



remove the "0" - noted in 4/5/17 comments

4

of linking the highway design process to regional and community plans. The proposed US 9 project is just another example of advancing complete streets policy 0in New York.

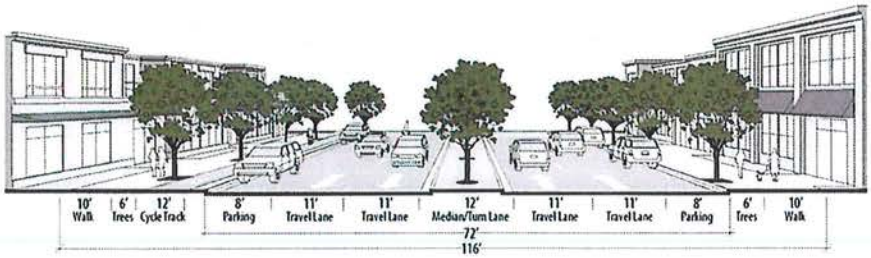
The Proposed FBC Complete Street Description

The complete street cross-sections for the core and transition areas of the corridor that were adopted as part of the Form-Based Code (FBC) Plan are shown in Figures 1 and 2.

The *core area* cross-section (Figure 1) would maintain four 11-foot travel lanes through the corridor. The existing two-way turn lane would be converted to a raised landscape or decorative hardscape median with breaks designed to separate directional traffic while managing private and public property access and to provide refuge for pedestrians crossing the roadway. The proposed design calls for two 8-foot parking lanes, a 12-foot "cycle track" (termed a *separate bikeway* in NYSDOT's Design Manual) on the west side of US 9, 6-foot planting areas and 10-foot sidewalks on each side of the roadway. The highway right-of-way width required for the full build-out that accommodates all of the proposed complete street treatments is approximately 116 feet. The width of the highway section, including travel lanes, median, and parking is approximately 72 feet.

Figure 1 – Proposed FBC Route 9 Core Area Section

PROPOSED TYPICAL SECTION:
ROUTE 9 - CORE



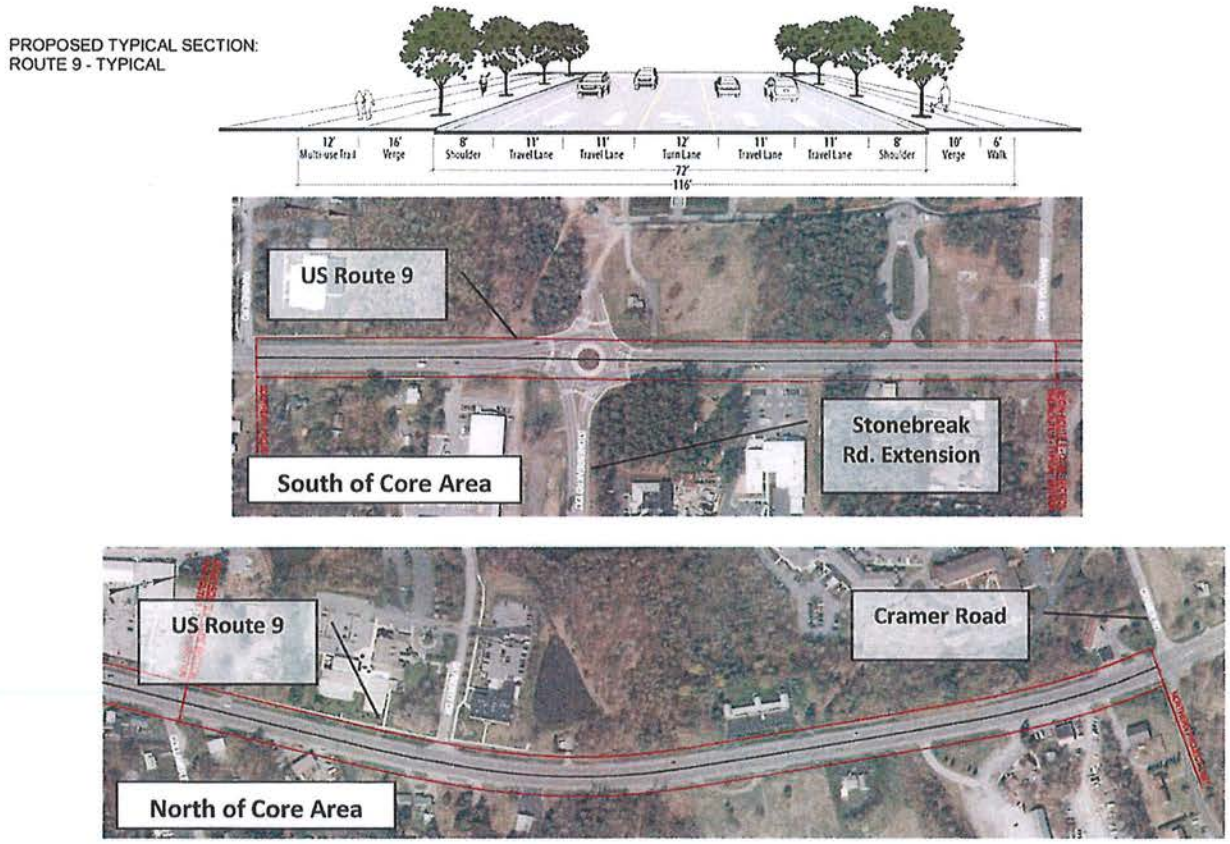
The *transitional* cross-section (Figure 2) would also maintain four 11-foot travel lanes with 8-foot shoulders, and would retain the flush median treatment to accommodate left turning traffic. The proposed concept calls for a 16-foot vegetation strip and 12-foot shared-use path on the west side of Route 9 and a 10-foot vegetation strip and 6-foot sidewalk on the east side of Route 9. The full build-out

why not convey 116"? - 4/5/17 comment

5

width within the *transitional* area is equal to the width required in the core area. Consistent with the study's adopted principles, the plan calls for eventually extending the raised median and other complete street features through the transitional areas as well.

Figure 2 – Proposed FBC Route 9 Transitional Area Section



Under the FBC Plan proposal, bicycle travel in the core area would be accommodated with a "cycle track" or separated bicycle path located on one side of US 9, and by a shared-use path through the transitional area. Alternative bicycle treatments, like directional separated facility on each side of the corridor and other operational designs, will be evaluated in any future design effort.

Road diet options that reduce pavement width through the corridor will also be explored in the design study. It looks like US 9 traffic volumes are sufficiently low enough to satisfy the warrants for "right-sizing" the highway, at least in one direction through the corridor[3].

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[3] *The FBC plan does not call for right-sizing at this time, though it may be possible. According to NYSDOT, FHWA, and other sources, dieting could work where daily demand is below 20,000 vpd. According to CDTC's Arterial Capacity Guidelines, right-sizing can be considered if peak direction demand is below 1,300 vph during the peak travel hour. CDTC's STEP Model estimated average weekday demand in 2025 for the corridor to range between 18,000 and 23,000 vehicles per day, with peak direction demand to range between 700 and 1,300 vehicles per hour. With well-managed access, right-sizing could work, but will require*

again, footnote carryover to next page?

6

7

please check 4/5/17 submittal - appears insertions and deletions were not addressed. Those suggestions remain valid and will not be repeated throughout the remainder of this document.

Issues Raised by NYSDOT's Comments on the Form-Based Code Street Proposals

Advancing the FBC complete street concept would require confirmation that the typical section(s) would fit in the available right-of-way and/or space between existing buildings to accommodate the proposed median, travel lanes, bicycle facilities, and sidewalks. Since horizontal and vertical features differ through the corridor, the evaluation must ensure that the proposed treatment would fit throughout the corridor. This effort addressed four issues that NYSDOT raised at the time the FBC plan was prepared:

1. *The ability to safely accommodate on-street parking for all users:* NYSDOT noted that the shoulder cross-slope in parts of the corridor may be too steep to allow driver and/or passenger doors to open easily (doors hitting or rubbing the pavement or newly installed curbing). Long-term, ADA cross-slope requirements of the parking lane might be an issue as well. High operating speed needs to be addressed.

2. *The location of existing buildings at Ellsworth Commons may constrain the complete street "fit":* NYSDOT noted that any evaluation should confirm both horizontal and vertical fit by demonstrating that sufficient right-of-way is available to accommodate all proposed complete street features, and to determine whether grading is needed to tie in any vertical difference created between the proposed sections and the existing ground and building floor elevations.

3. *Adequacy of the existing closed drainage system through the core area:* NYSDOT is concerned that individual drainage systems that have been constructed may not be sufficient to handle all the drainage once surrounding parcels are built out. While quantifying the cumulative drainage needs for the entire downtown area goes beyond the scope of the Linkage Program, a planning level analysis will be conducted to give us some idea of the physical impacts of installing a closed drainage system would have on US 9.

4. *Installing a raised median will impact left-turning traffic:* NYSDOT noted that a method for allowing left-turns and u-turns must be evaluated, and that any treatment must be consistent with New York State Vehicle and Traffic Law, NYSDOT Design Manual, and other relevant regulation and design guidance. NYSDOT expressed some concern with the access management strategies highlighted in the FBC Plan, noting that a grid system of local streets around US 9 would be critical to the construction of a raised median.

Title 7, Article 8?

MUTCD not included?

8

Possible Outcomes

This technical memorandum covers Items 1, 2, and 4 listed above. The planning level analysis of drainage impacts will be conducted once the findings of the "fit" analysis have been reviewed. This analysis will help evaluate the feasibility of the FBC street proposal. The test of feasibility may yield one of several outcomes:

Please explain what element(s) may be non-standard.

9

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additional review during design. NYSDOT's official threshold for a road diet is 15,000 AADT on an undivided four lane highway, (per Appendix A of Chapter 18 of the Highway Design Manual). Justifications for non-standard design would be discussed with NYSDOT during the design stage.

- The desired complete section pictured in the FBC study can be accommodated in the study area largely within the confines of a repaving and curbing project without significant grade manipulation or changes to the existing closed drainage system.
- The desired section can be accommodated horizontally, but elevations, drainage modifications, or other factors necessitate significant roadway reconstruction in order to implement the section.
- Major features of the desired section cannot easily be accommodated within the corridor, and removal/reduction of lanes, or removal of other features, would be required.
- Changes to the cross-section are not possible. Under this condition, operational and regulatory treatments that will help improve the walking and cycling environments will need to be identified.

for both core and transitional areas

10

Technical Material Compiled for Geometric Evaluation

had

1. Design Criteria tables (see Attachment A) showing standard and proposed values for various design elements. At this time, two alternatives are shown, one representing the existing highway cross-section, and the second showing the FBC, or complete street, alternative. The complete street alternative was partially vetted at the time the FBC Plan was prepared. The FBC concept was vetted by the community, however a technical evaluation of feasibility to implement the concept has not been conducted. The purpose of this effort is to conduct a technical evaluation of the feasibility and to help address preliminary comments provided by NYSDOT on the initial FBC concept during its preparation. The core area extends roughly from Ellsworth Commons on the north to Saratoga Village Boulevard on the south. Design criteria are offered for the following conditions[4]:

    - Core area with a 30 mph target, or design, speed[5]. Pedestrians to be accommodated with a sidewalk on both sides of US 9. Cyclists to be accommodated with a separated bikeway, often called a cycle track, on the west side of the road.
    - Transition area with a 40 mph target speed. Sidewalk on one side and wide shared–use path on the other.

(See Attachment B) Suggest placing Typ Section before the plan sheets)

2. Using the FBC Plan as the context, typical sections showing pavement cross-slopes and other criteria for four locations from north to south as follows:

11

    - Sta. 28+50 located outside the core area north of Stonebreak Road
    - Sta. 41+00 located inside the core area north of Saratoga Village Boulevard
    - Sta. 65+00 located inside the core area in front of Ellsworth Commons
    - Sta. 99+00 located outside the core area south of Cramer Road

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[4] *The approach to street design is changing. Conventional street design, which focuses largely on forgiving driver error and moving cars rather than people, is grounded in a strong road hierarchy with wide roads, broad intersections, and high posted speeds. As NACTO, ITE, and others explain, design elements under a conventional design process are based on "how fast drivers are actually driving rather than how fast drivers ought to actually drive." A road design that fosters high speed is not the kind of road that supports a town center. As an alternative approach, ITE recommends using "target" speed in the design process. Target speed is the speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land use to provide a safe environment for pedestrians and bicyclists. For a town center, target speed should be as low as possible, but not exceed 35 mph.*

[5] *The design speed is either: maximum functional class speed or a speed based on the anticipated (post-construction) off-peak 85th percentile speed within the range of functional class speeds. Coordination with the Regional Traffic Engineer will occur to determine the design speed to be used for selection of the other critical design elements.*

3. Existing Conditions and Proposed General Plans (see Attachment B). Each plan set features the underlying aerial images, right-of-way lines, driveways, and other features for the existing and proposed FBC roadway. Right-of-way boundaries are based on current tax maps and Exit 12 Reconstruction design plans. Within the Core Area, the preliminary raised median layout accommodates left-turning traffic and U-turns at key locations as depicted on the Proposed Condition Plans.

4. A series of photographs showing the elevation differences in the core area of the corridor.

Using the Existing Shoulder for Parking

At the time the FBC was adopted, NYSDOT expressed concern about parking in the corridor. As part of this study, CDTC staff field-tested the shoulder in front of Ellsworth Commons to determine the ability of vehicles to safely and comfortably park. Using a two-person team, CDTC parked a passenger car, opened both driver and passenger doors, left the car, and walked to the sidewalk. Opening the doors did not present a problem in terms of parking area width or cross slope. Walking to the sidewalk required staff to cross a three-foot unpaved area. The current shoulder width is not PROWAG compliant[6] and curb ramps only exist at controlled intersections. The location of curb ramps beyond what currently exists would be evaluated during design.

The speed of traffic is also a concern, but recent speed observations in the area suggest that operating speeds have been decreasing over the last several years. NYSDOT reported a reduction in speeds near Adirondack Trust, with the 85th percentile speed dropping from 44 mph in 2008 to 37 mph in 2016. In an October 2016 field visit, CDTC collected speed data by observing the speed-feedback sign in front of Ellsworth Commons – results were consistent with NYSDOT findings where average speed calculated to 34 mph and 85th percentile speed calculated to 39 mph. With continued enforcement and implementation of other complete street treatments, traffic speeds are expected to decrease further.

NYSDOT has been working with the Town to develop an interim parking arrangement. In an effort to assist the implementation of the FBC vision for the corridor, the Department, pointing to the Town's success in reducing vehicle operating speed, recently agreed to allow the Town to implement on-street parking in front of Ellsworth Common, and will consider parking in adjacent portions of the US 9 Core Area.

On-street parking is accommodated within the complete street plan and will have a more user-friendly feel compared to the current (interim) design. The complete street design will comply with NYSDOT design standards for maximum cross slope within a parking lane.

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[6] *PROWAG guidelines for on-street parking state that when the adjacent walkway is 14' or more, accessible parallel parking spaces will include an access aisle of at least 60 in (5ft). When the adjacent walkway is less than 14', accessible spaces should be located at the ends of each block. There should be one accessible parking space in every 25 parking spaces up to 100 spaces, and one in every 50 spaces after 100 spaces.*

Conducting the Evaluation for Geometric Fit

The feasibility of fitting the typical complete street sections in both the core and transitional areas within available right-or-way was evaluated using the design criteria shown in the Design Criteria Tables, ADA accessibility guidelines, and Chapter 18 of NYSDOT's Highway Design Manual. Feasibility involved the examination of several factors including target speed, horizontal and vertical features, property access, drainage, and storm-water management. The process was fairly straightforward, identifying applicable design standards and guidelines. Once design criteria had been established, transportation engineers evaluated the proposed sections against the design criteria to determine how well the proposed sections would fit within the existing right-of-way. The process allowed engineers to determine what horizontal and vertical adjustments would be required to meet design requirements. **The evaluation relied on existing data, field information, and standards – no new data was generated for this analysis.** The study team and advisory committee fully expects that additional data and analysis will be required in order to confirm findings derived from this study.

Key findings related to the geometric fit assessment show:

- Sufficient right-of-way width to accommodate all complete street treatments included in the FBC highway sections is not available along much of the corridor. The right-of-way mapping shown on the Proposed General Plans identifies minor strip-takings along approximately 7,500 linear feet of the southbound shoulder and 6,300 linear feet along the northbound shoulder that may be necessary to accommodate sidewalk and landscaping features. A road diet that eliminates or repurposes an existing travel lane would eliminate the need for these strip-takings, but would negatively impact the ability to provide for u-turns in one or both directions.
    - The width of strip takings along the southbound shoulder range from 5 feet to 25 feet, with most takings less than 15 feet wide.
    - The width of strip takings along the northbound shoulder range from 2 feet to 15 feet, with most takings less than 10 feet wide.

different font size? 12

- In accordance with Town Code, the existing facilities within the core area already have sufficient and properly designed ADA compliant accessible parking at the rear of buildings. Providing accessible on-street parking is typically not the industry standard, but the possibility will be assessed during final design[7]. Assuming the Town does not want to remove the existing curbed sections from the FBC in the core area, those who need accessible on-street parking would be required to walk between parked cars and the travel lane to access an ADA compliant ramp[8]. For example, if a driver has parked on-street and is exiting his/her vehicle, they will be in the travel lane. Subsequent adoption of PROWAG will require consideration during design. The existing and proposed shoulder width is insufficient to do this. A five percent cross-slope is 'adequate', but a gentler slope may be desirable based on the following guidance and standards:

13

adequate for what? 14

[7] *In a recent court case in California, the Ninth Circuit Court (Fortyune v. City of Lomita) held that cities should be proactive in creating accessible on-street parking, even if design standards are not available. The Supreme Court denied the city's petition for a writ of certiorari in 2015. The case applied to diagonal parking, not parallel, but it may be wise to err on the side of caution and include accessible on-street parking if at all feasible.*

[8] *In order for on-street parking to be considered "accessible" by PROWAG standards, there must be either a 5' access aisle that "does not encroach on the travel lane", or the spot must be located at the end of a block near the curb ramp and there must be no obstructions to the operation of a wheelchair lift on the sidewalk. These requirements depend on the width of the sidewalk. See the PROWAG technical requirements (section R309.2)*

cross slopes of? (15)

- NYSDOT's *Highway Design Manual* specifies the acceptable range for parking lane cross-slope to range between 1.5 and 5.0 percent (HDM Section 2.7.2.2).
- The AASHTO *Guide for Geometric Design of Highways* shows the acceptable cross-slope range at 2.0 to 6.0 percent.
- ADA PROWAG standards recommend a maximum parking cross slope of 2.0 percent. A 2.0 percent shoulder cross slope is likely to affect the vertical profile of US 9. Subsequent adoption of PROWAG will require consideration during design.

(16) is this desired?

- Figure TYP-02 (see Attachment B) shows the critical existing elevation on the east side of US 9 in the vicinity of Ellsworth Commons to be the floor level of the existing buildings. The intent is to minimize reconstruction and impacts to the existing streetscape by adjusting cross slopes within the permissible limits to address the vertical fit. Box-widening, drainage and other complete street elements would result in a +/-6 inch cut at the curb line. In order to maintain the existing cross-slope across travel lanes and median while maintaining the critical elevation at the existing buildings, a six-inch cut would be required across US 9. Construction of a two percent cross-slope curb-to-curb (specifically to provide a 2% parking lane cross-slope), would likely require a larger cut. The shoulder may also require reconstruction, however, this would need to be determined at the time of design. A six-inch or larger cut would most likely require full-depth reconstruction in order to provide necessary structural pavement strength (based on available information). An existing pavement analysis would be done during preliminary design to verify the integrity of the remaining section if +/- 1" of existing asphalt was removed. Although the precise limits of reconstruction cannot be assessed until survey is available during preliminary design, the area that may be subject to reconstruction falls approximately between Sta. 59+15 and Sta. 72+80.

shoulder excluded? (17)

- Raising the elevation along the existing (east-side) curb line and shoulder to provide a two percent cross-slope might be possible. Given the data available to the study team, it looks like that option could encroach on the finish floor elevation of buildings located adjacent to the three existing driveways. The analysis suggests that the potential exists for substantial disruption to existing structures, and some-type of retaining structure might be required on the west side of US 9 due to the grade change beyond pavement width. This may require some retaining structures. This will be determined at time of design A more rigorous engineering analysis through the project design process will be required to determine the best way to accommodate vertical requirements of the project. At this time, however, it seems a curb-to-curb cut would cause the least disruption to existing business investment. Shrinking the width through right-sizing would not affect vertical requirements and impact. The visual appeal and fit of vertical impact and mitigation will have to be evaluated during preliminary engineering. See Attachment C for illustration.

depicting what? (18)

Bottom Line Assessment

why not include statement here? (19)

Construction of the US 9 core and transitional sections identified in the Town's FBC **south of the US 9/NY 67 roundabout** will require a box widening on both sides of US 9 in order to provide adequate pavement width for complete street features (see page 6 for ROW discussion). The proposed pedestrian and bicycle facilities will be sloped toward the shoulder as shown in typical sections. Ideally, travel lanes and center turn lane in the transitional area will be milled and paved with the profile of the roadway remaining the same. This approach is generally a preferred good practice that provides consistency from curb to curb. Constructing to a two percent cross-slope if desired for both travel lane and parking

sufficient R.O.W. is necessary to support the infrastructure to allow it to be functional. Can acquisition be discounted? if not, include

(20)

lane can be achieved using this technique. The existing cross-slope would need to be verified during design. Throughout this part of the corridor, sufficient public property is available (or easements can be obtained or an examination of right sizing the roadway would occur at time of design) to accommodate the grading needed to tie in the vertical difference created by the proposed sections and the existing ground.

Based on the information available to the study team, fitting the proposed section in the corridor **north of the NY 67 roundabout** will be a bit more difficult. In the core area where existing development is close to US 9 and the existing pedestrian space, grading will not be an option to tie together the proposed section to the existing ground. In this case, either a full depth reconstruction across the full width of the roadway or reconstruction of the sidewalk area in front of Ellsworth Commons (with profile adjustment) will be required. The limits of US 9 that may be subject to full depth reconstruction extends from Station 59+00 to Station 73+00. The limits of profile adjustment will need to be verified during preliminary design after precise existing elevation data is obtained.

I believe that the possibility of FBC being revisited needs to be addressed, and accordingly, state what the implications would be as it relates to this effort.

Managing Access in the Corridor

(21)

Implementing the FBC complete street alternative requires an effective access management strategy. For the last ten years, the Town of Malta -- in its *Comprehensive Plan, US 9 Plan, FBC Plan*, and most recently in the *Town-wide GEIS* – recognized the critical importance of managing access on all major roads throughout the town, especially on US 9. All four plans acknowledge that without a pro-active access management protocol, continued development in the Town will place a significant burden on roads like US 9 – providing unchecked access to adjacent property that will challenge the ability of major arterials to efficiently move people and goods. These studies have also underscored the importance of formulating comprehensive arterial management protocols for the Town's arterial corridors to preserve or restore or preserve the functionality as well as the economic viability of these major corridors. Town policy has promoted comprehensive arterial management strategies that include properly located driveways, shared access, and connector streets. Specific guidelines have been set forth in the Town's *Highway Access Planning Guide* and *Form Based Code Plan.*

As shown on Map 2, the FBC Plan has specifically laid out a strategy for constructing a grid system of local roads for five areas in the US 9 and NY 67 corridors to minimize driveways intersection the highways:

- *Shops at Malta*: This large mixed use retail and residential development is located on the northwest corner of US 9 and Dunning Street. Full access to the site on US 9 is limited to the signalized Kendall Way/US 9 intersection. Full access to Dunning Street is provided at the Route US 9/NY 67 roundabout. Raised medians on NY 67 and at the US 9 approach to the US 9/NY 67 roundabout limit other access to right turns only.

- *Saratoga Village & Blacksmith Square:* A mixed use parcel located on the southwest corner of US 9/NY 67 intersection. Professional office, apartments, hotel, and small retail are served by a grid street system. Uncontrolled access is currently provided at Blacksmith Drive and US 9, at Saratoga Village Boulevard and US 9 or at the roundabout at Blacksmith Drive. Saratoga Village Boulevard is a good candidate for a second controlled access point. The type of controlled access at this location and throughout the corridor is undetermined at this time and would be explored during design stage. The intent is to identify access control to assist with U-turns

Study Team Disposition of NYSDOT Round 2 Comments

Malta Route 9 Linkage Study
Response to NYSDOT Round 2Comments
Response Document # 2: Comments Cited on Previous Response Document

Numbered responses correspond to numbered comments:

1. That was a huge oversight on our part. Not sure how that happened. My sincere apology for making you repeat earlier comments. We'll fix per the responses on Reponse Document # 1.

2. Noted
3. Noted. See response # 2 on Response Document # 1.

4. Noted. No real need to cite start date here, is there? I think we can note that in the Profile document.

5. I think these are cited on page 12 of the document sent to the SAC. Is there a better way to do this?

6. Rewritten. See response # 9 on Response Document # 1.

7. Probably. Citation will be added.

8. Noted. Attachment will be identified

9. Noted. Attachment will be identified

10. Noted. Attachment will be identified.

11. This is a design detail that requires costly thought. Doesn't affect the stated study purpose.

12. We certainly can mention the continuing concern about the 9/67 roundabout. When DOT gets around to fixing it, speeds should decrease.

13. The current Town Board has not expressed a preference but then it may not be solely up to them. This can be handled in design.

14. Noted. However, I don't think we need to consider this right now. We can a statement or footnote about this in the narrative.

15. Noted. We'll include the statement.

16. Okay. Makes sense.

17. Most, if not all, is publicly owned. Easement is easiest. But for now, let's assume acquisition.

18. We'll try to strengthen that thought. The intent was to link all those properties along Dunning to a future controlled intersection. I think that intent is shown on Map 2.

Feasibility of Reconfiguring US 9 in the Downtown Core Area of the Town of Malta as a Complete Street

Summary and Response to NYSDOT Comments on Technical Memorandum: Assessing the Geometric Fit of the Proposed Form-Based Code Street Cross-Section

Comments Received: April 5, 2017

Comment Number	Comment Overview (see attached for verbatim comments)	Team Response
1	Formatting	Noted
2	Clarify document title/purpose	Title will be changed to clarify.
3	What is curbing project?	Text will be modified to include box-widening/mill and overlay also
4	Timeframe reference is dated	Noted. The effort began in 2016 which is why the timeframe reflects that.
5	Location of median breaks	Team to provide station ranges where median breaks are proposed
6	Clarify location of sidewalk	Text will be reworked to clarify
7	Consistent use of terms	Shared use path will be the consistent term used
8	Road diet AADT thresholds referenced	This information will be included as a footnote in the memo
9	Regulation reference	Text will be corrected to include reference to the NYS Vehicle and Traffic Law
10	Design Criteria table clarification	Noted. Design Criteria is included in the tech memo attachments for both the Core Area and the transition area outside the core.
11	Define 'partially vetted'	Text will be added to explain that the Form Based Code (FBC) concept was vetted by the community, however a technical evaluation of the feasibility to implement has not been conducted until now. The purpose of this effort is to conduct a technical evaluation of the feasibility and to help address preliminary comments received by DOT on the initial FBC concept.
12	Design speed versus target speed discussion	Acknowledged. This information will be added as a footnote and would need to be discussed at the time of preliminary design and will consider community context and goals with current DOT policy. Note - this has been addressed footnote 4 in text and footnote 2 in the design table.
13	Design criteria table	Noted. Design Criteria is included in the tech memo attachments for both the Core Area and the transition area outside the core.

Comment [rsc1]: While NYSDOT comments submitted 04/05/17 were addressed per se, the insertions, deletions and repositioning of text recommended to provide greater clarity to the document had not been incorporated, nor addressed in any manner.

Comment [rsc2]: Comments below pertain only to the intended disposition of the comments (those made previously). Comments on the 6/2/17 document, shared by J Hakes, will be provided via a separate submittal.

Comment [rsc3]: This lacks clarity - is this 2 options?

Comment [rsc4]: Ok – indicate as such

Comment [rsc5]: Where? – on plans? If so, state so.

Comment [rsc6]: Good – but not sure what the inference to non standard design is about

Comment [rsc7]: Is this VAT, Title 7, Article 28?

14	Attachment of typical sections missing	This information was included, but we will verify.
15	Reference a missing typical section	This information was included, but we will verify and modify reference as needed.
16	Reference a missing typical section	This information was included, but we will verify and modify reference as needed.
17	Use of consistent dimensions	This will be checked and modified as needed.
18	PROWAG standards for on-street parking	This information will be added and will need to be addressed at the time of design.
19	Location of curb ramps	This would be addressed during the design stage.
20	Existing roundabout concerns	Noted. The scope of this effort does not including addressing existing concerns with the existing roundabouts.
21	Accessible on-street parking	Noted and will be added as footnote. The concept will remain in tech memo for consideration by the advisory committee and Town. This would be determined at design stage and the addition of an ADA compliant space at the end of the on-street parking may be the solution.
22	Town preference regarding on-street accessible parking	Acknowledged. The concept will remain in tech memo for consideration by the advisory committee and Town. Subsequent adoption of PROWAG will require consideration during design.
23	Clarification of travel lane significance	Text will be reworked to clarify. If a driver has parked on-street and is exiting their vehicle, they will be in the travel lane. technical evaluation of the feasibility Subsequent adoption of PROWAG will require consideration during design.
24	PROWAG standards	Noted and will be added as footnote. The concept will remain in tech memo for consideration by the advisory committee and Town. Subsequent adoption of PROWAG will require consideration during design.
25-28	Cross slope	Noted and will be clarified. Without a survey of existing conditions, it is difficult to accurately determine. This would be determined at time of design and may influence cost of implementation.
29	Addressing the shoulder	It is likely that the shoulder would need to be reconstructed. However, that would be determined at the time of design.
30	Redesign of retaining structure	Text will be added to explain. The grade change beyond pavement width may require some retaining structures. This will be determined at time of design.

Comment [rsc8]: The intent of the comment was to cite the location.

Comment [rsc9]: The intent of the comment was to cite the location.

Comment [rsc10]: The intent of the comment was to cite the location.

Comment [rsc11]: weak

Comment [rsc12]: ??

Comment [rsc13]: This response is not related to the inquiry. The inquiry "Does the Town have a preference now?" was related to the phrase "Assuming the Town does not want to remove the existing curbed section from the FBC core area . . ."

Comment [rsc14]: ??
Suggest taking a look at min/des shldr parking lane widths for urban arterials. [width of car (parked 6" from curb)+open door is generally less than 125"]

Comment [rsc15]: Ok – include a statement to provide the clarification.

31	Use of word 'simply'	This will be removed.
32	ROW acquisition question	ROW acquisition is discussed on page 6 of the text memo. Text can be added to reference this. Some minor strip-takings may be required.
33	Question about why milling and paving is necessary	This is generally a preferred good practice that provides consistency from curb to curb
34	Cross slope for parking and travel lane	Text will be modified to explain possibly both, but more likely for the parking lane. The existing cross-slope would need to be verified during design.
35	ROW acquisition or easements	This would be pursued at the time of design along with opportunities to right size the roadway.
36	Will the FBC be revisited?	It is likely the Town may revisit the FBC possible at the design stage, especially in context of road diet.
37	Cost estimate	A preliminary cost estimate based on the available information will be included in this effort.
38	Number of areas identified	This will be corrected.
39	Reference to secondary access at Kendall Way / Route 9	This comment appears to be referencing a future loop road at the existing CVS connecting to the Parade Ground Village. (not the Shops at Malta). Text can be added to clarify.
40 - 42	Describe type of controlled access	Undetermined at this time. This would be explored during design stage. The intent is to identify access control to assist with U-turns throughout the corridor. It may also be necessary to have another controlled intersection to provide adequate pedestrian crossing according to NACTO guidelines. To be examined carefully during the design stage.
43	Use of parenthesis	Probably and parenthesis will be removed and replaced with likely
44	Number of location identified	This will be corrected.
45	Potential for additional roundabouts	Noted. Also see response to 40-41.

Comment [rsc16]: While reference was added, (thank you), why not make it easy for the reader – and state that some minor strip-takings may be required.

Comment [rsc17]: The comment had been questioning if 'easements' were really an acceptable means of gaining access and using the abutting owners land.

Comment [rsc18]: The original comment was poorly worded – it should have referenced the potential link in the NE quad of the Rt 9/67 RAB (from CVS to the church on Dunning Street)

NYSDOT Round 3 Comments
Final Resolution of Study Team Responses to Round 1 & 2 Comments

REVIEWED
By rob cherry at 7:49 am, Jul 31, 2017

Malta Route 9 Linkage Study
Response to NYSDOT Comments
Response Document # 1: Annotated Memorandum

Numbered responses correspond to numbered comments on the attached memorandum:

1. NYSDOT comments and their disposition will be sent to the advisory committee. A reference to all advisory committee comments and their disposition will be added to the final document, and will be included in an Appendix to the report. NYSDOT's second round of comments will be referenced as clarifications. very good

2. You are correct, the sentence remains confusing. It will be replaced with: ".....and largely within the confines of a preservation project." A footnote will be added to define "preservation project" as follows: "A preservation project is typically limited to resurfacing but may include some minor geometric modifications, drainage improvements, ADA compliance work, and landscaping. While creating a complete street through preservation project would be the most economical, some limited major reconstruction work may be required to meet geometric requirements, and will be identified in the study." ok

3. Noted. Footnotes should not be carried over. ok

4. Noted. The identification of the typo was missed. ok

5. Good point. Text will be edited to read, ".....equal to the 116-foot width required in the core area." ok

6. Noted. ok

7. Not sure how this happened. The following suggested additions will be added: thank you
   - Page 5, "and the drainage outlet facilities"
   - Page 6, "the desired FBC section"
   - Page 8, in a footnote, "based on NYSDOT Highway Design Manual, Chapter 2"
   - Page 8, various text insertions on all four bullet points
   - Others as discovered

8. Noted. We'll check the section, and add "Title 7, Article 8" or whatever it is. Of course MUTCD is included in "other relevant regulation", but we'll explicitly cite it. ok

9. Sentence incorrectly references "non-standard design". It should reference the framework. Remove and replace with something like this: " Even though parts of US 9 carries more than 15,000 vpd, there is potential for right-sizing based on directional flow and other factors. This will require further and analysis and discussion as the planning and design process proceeds." ok (The *Transportation System Profile* for the study suggests this possibility).

10. Noted. Will add the phrase for clarity. "Has" will be changed to "had". ok

11. Noted. ok

12. Noted. ok

I question this - a well designed parking lane would not require a driver to step into the travel lane [width of parked car + 6" (parked from curb) + open door < 125"]

13. How about, "For example, exiting a parked vehicle from an on-street space will require a driver to encroach or enter the adjacent travel lane."

14. Adequate to use the shoulder as a parking lane. Further, it means that the cross-slope for parking meets NYSDOT's current minimalist guidelines. appreciate the clarification

15. Adjusting shoulder cross-slope ok - suggest indicating so in text

16. Yes, if cost is a critical factor. (Personally, I think the cross-slope of the entire road from center-line to curb-line should not exceed 2 percent, similar to Wolf Road). state so would seem to address ADA compliance

17. Willing to adjust to meet recommended PROWAG standards unclear how text is to be revised

18. Difference in elevation between face of building and desirable pavement elevation (to meet required cross-slope). I'll ask MJ to clarify. ok

19. Reference to page 6 will be removed, and a note indicating strip-takings may be necessary will be added. ok

20. Most of this is public land where easements should be possible. But, let's just call it acquisition to make things simpler. agreed

21. To the extent a diet might be possible, reducing the number of lanes (even one) can minimize or even eliminate right-of-way acquisition. Of course, this would incur other costs related to lane removal, etc. Such an examination would also consider the sizing of certain complete street elements. This is a task for another day. I think we can add a footnote in this regard.

this seems to be an acceptable approach

Red text = comments on intended disposition of comments

- R S Cherry 07/28/17

Malta Route 9 Linkage Study
Response to NYSDOT Comments
Response Doument # 2: Comments Cited on Previous Response Document

Numbered responses correspond to numbered comments:

1. That was a huge oversight on our part. Not sure how that happened. My sincere apology for making you repeat earlier comments. We'll fix per the responses on Reponse Document # 1. ok - things happen
2. Noted ok
3. Noted. See response # 2 on Response Document # 1. ok
4. Noted. ok No real need to cite start date here, is there? no I think we can note that in the Profile document. agreed
5. I think these are cited on page 12 of the document sent to the SAC. Is there a better way to do this? indeed they are - reference to that page/section would be beneficial
6. Rewritten. See response # 9 on Response Document # 1. the rewritten statement addresses the comment
7. Probably. Citation will be added. ok - wouldn't MUTCD be included as well?
8. Noted. Attachment will be identified ok
9. Noted. Attachment will be identified ok
10. Noted. Attachment will be identified. ok
11. This is a design detail that requires costly thought. Doesn't affect the stated study purpose.

    understood - yet the statement that "curb ramps exist only at controlled intersections seems to imply that it is problematic
12. We certainly can mention the continuing concern about the 9/67 roundabout. When DOT gets around to fixing it, speeds should decrease.

    not necessary
13. The current Town Board has not expressed a preference but then it may not be solely up to them. This can be handled in design. ok
14. Noted. However, I don't think we need to consider this right now. We can a statement or footnote about this in the narrative. point was a well designed parking lane would not necessitate the driver to step into the travel lane
15. Noted. We'll include the statement. ok
16. Okay. Makes sense. ok
17. Most, if not all, is publicly owned. Easement is easiest. But for now, let's assume acquisition. I think that is best.
18. We'll try to strengthen that thought. The intent was to link all those properties along Dunning to a future controlled intersection. good I think that intent is shown on Map 2.

    ok - (didn't think that we had Map 2 as part of the March doc)