Final Report

JAMES STREET ROAD DIET STUDY

Prepared For:

Syracuse Metropolitan Transportation Council (SMTC)
100 Clinton Square
126 N. Salina Street
Suite 100
Syracuse, New York 13202

Prepared By:

Wendel Duchscherer Architects & Engineers
140 John James Audubon Parkway
Suite 200
Amherst, New York 14228

GTS Consulting
1396 White Bridge Road
Chittenango, New York 13037

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Syracuse Metropolitan Transportation Council

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For further information contact:

Michael D. Alexander, AICP, Project Manager
James D'Agostino, Director
Syracuse Metropolitan Transportation Council
126 N. Salina St., 100 Clinton Square, Suite 100, Syracuse, NY 13202
PHONE: (315) 422-5716 FAX: (315) 422-7753
www.smtcmpo.org

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Executive Summary

Project Purpose

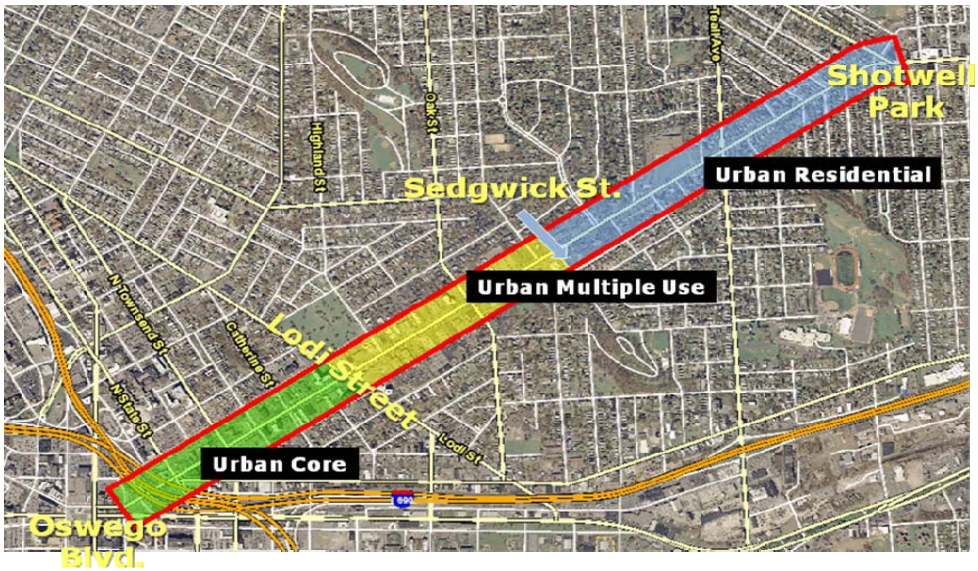
The James Street Road Diet study was prepared by the Syracuse Metropolitan Transportation Council (SMTC) and its consultants, Wendel Duchscherer Architects & Engineers (Wendel) and GTS Consulting, on behalf of the study's sponsor - the City of Syracuse Department of Neighborhood & Business Development (City). The City of Syracuse is considering a road diet scenario for James Street to calm traffic and enhance the corridor for all users (motorists, pedestrians, bicyclists, and transit users) without adversely affecting automobile traffic. A road diet concept is consistent with the City's sustainability initiatives and has the potential to result in several positive impacts: 1) increased mobility and accessibility, 2) improved traffic operations, 3) improved safety, and 4) enhanced quality of life.

Road Diet

The term "road diet" refers to the reduction or modification of travel lanes to better accommodate all transportation modes. Typical road diet benefits include a reduction in the number of speeding vehicles, improved safety, enhanced streetscapes, and a more balanced approach to transportation that supports walking, biking, and transit use. Any proposed changes to the James Street corridor, if implemented by the project sponsor (i.e., the City of Syracuse) or facility owners (i.e., Centro), will occur within the existing right-of-way.

Study Area

The study area includes the James Street corridor from Oswego Boulevard to Shotwell Park/ Grant Boulevard. The James Street corridor consists of three "character zones" that are different and distinct from each other, and because of its various design opportunities, the Urban Core area was further divided into three sub areas. Custom cross-sections for each area were developed within each alternative.



Cross-sections were designed so that they could be interchanged with cross-sections of other alternatives to create a custom alternative. During the final public meeting, the SMTC encouraged the public to review each corridor segment and indicate their preference for the cross-section they liked best for that area.

Study Advisory Committee

The SMTC established a Study Advisory Committee (SAC) to oversee the study and provide insight on the technical content of deliverables. The SAC membership included the following:

- New York State Department of Transportation (NYSDOT)
- Central New York Regional Transportation Authority (Centro)
- Syracuse Onondaga County Planning Agency (SOCPA)
- City of Syracuse, Engineering Department
- City of Syracuse, Department of Public Works
- City of Syracuse, Bureau of Planning and Sustainability
- City of Syracuse, Police Department
- City of Syracuse, Fire Department
- Syracuse City School District [Lincoln Middle School]
- Disabled-in-Action of Greater Syracuse

Study Considerations

Existing Conditions

James Street is functionally classified as a principal arterial and has two travel lanes in each direction in most locations. Pavement width varies, but is generally between 40 and 42 feet. The pavement along James Street is generally in good condition.

There are three main transit routes operating along James Street, and each offers several route deviations, for a total of nine routes traveling at least a portion of the corridor. Headways, or the time between buses, range from 25 minutes to as little as 5 to 10 minutes during peak times. Major bus stops along James Street have a shelter, seating, and route information, but most of the bus stops simply include a signed pole with no shelters or seating and in some cases no direct connection to a sidewalk. There is a bus pull-off lane along westbound James Street in front of Lincoln Middle School.

James Street has sidewalks on both sides of the street throughout the study area. The sidewalks closer to downtown tend to be wider and most have been upgraded recently. The residential areas typically have narrower and older sidewalks. The majority of the sidewalk widths are a minimum of 5 feet, which is ADA compliant, but many of the ramps are not compliant. Most of the sidewalks can be rated as good or fair, based on FHWA guidelines. Crosswalks and stop bars are generally in poor condition.

The study examined landscape features and utility infrastructure. In most locations, there is a generous tree lawn between the sidewalk and the roadway. The corridor has an excellent tree canopy in most areas, although there are gaps.

While accidents occur, the corridor does not have any high vehicle on vehicle crash locations. However, the intersection of James Street and North State Street was one of the highest bicycle and pedestrian accident locations between 1998 and 2000 in Onondaga County.

Traffic modeling was used to assess existing Level of Service (LOS) and queuing on the roadway to establish baseline conditions. Under existing conditions, all intersections operate at acceptable LOS, with the exception of the intersection with Shotwell Park and Grant Boulevard, which operates at LOS F during peak periods (rush hours).

Goals and Objectives

The SMTC and the SAC used feedback from the public to develop several goals and objectives for this project. The goals and objectives directed the development of road diet alternatives. The alternatives were then evaluated based on their ability to achieve the project objectives. The eight goals for the James Street corridor include:

- *Livability and Place Making:* James Street is a street people take pride in.
- *Access and Mobility:* Enhance access and mobility for all users.
- *Safety:* Improve safety for all users.
- *Flexibility:* Options will allow for choice and discretion in design and implementation.
- *Context:* James Street will complement and enhance the surrounding neighborhoods.
- *Balance:* Options will balance needs of commuters, alternative modes, and residents.
- *Healthy Environment:* Options will include sustainable options to minimize impacts and create a healthy environment.
- *Visual Excellence:* Improvements will be durable and of high quality.

Roadway Alternatives

Wendel developed five alternatives for the James Street Corridor. The first alternative was the no-build alternative, which serves as a baseline for comparing other future alternatives. Alternatives 2, 3 and, 4 were developed to address the project's intent as well as the study's goals and objectives. Alternative 5 was developed and considered in light of stated public desire not to reduce the number of travel lanes. The following elements are included in all alternatives except the No Build (Alternative 1), unless otherwise noted:

Dedicated Turn Lanes

Alternatives 2, 3, and 4 propose dedicated left-turn lanes at signalized intersections, along with dedicated right-turn lanes at strategic locations. This can be accomplished via the center turn lane in Alternatives 2 and 4. Alternative 3 must widen the necessary intersections to accommodate left-turn lanes. The right-turn lanes are accomplished by either removing on-street parking near intersections, or widening the intersection.

Four-Lane Segment

All alternatives (including Alternative 1) maintain the four-lane segment between Oswego Boulevard and North State Street. Traffic volumes require this accommodation to maintain acceptable traffic levels of service.

Traffic Signal Optimization

Traffic signal optimization is incorporated to further improve traffic operations and reduce overall delay through the corridor.

Intersections

Where bicycle facilities are proposed (either on-street or off-street), they should provide connections to existing cross street bicycle facilities (where present) or be compatible to connect to future bicycle facilities.

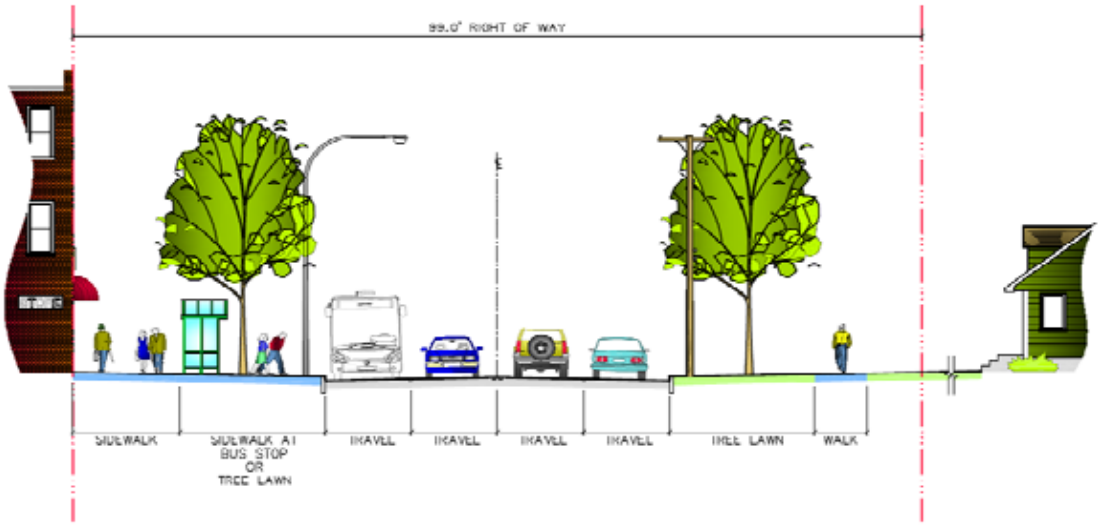
Milling and Pavement Improvements

Various alternatives and segments may require mill and overlay to reestablish the crown of the roadway at the centerline of the cross-section. These locations include segments of alternatives that incorporate on-street parking on one side of the street, which results in offsetting the centerline of the travel roadway.

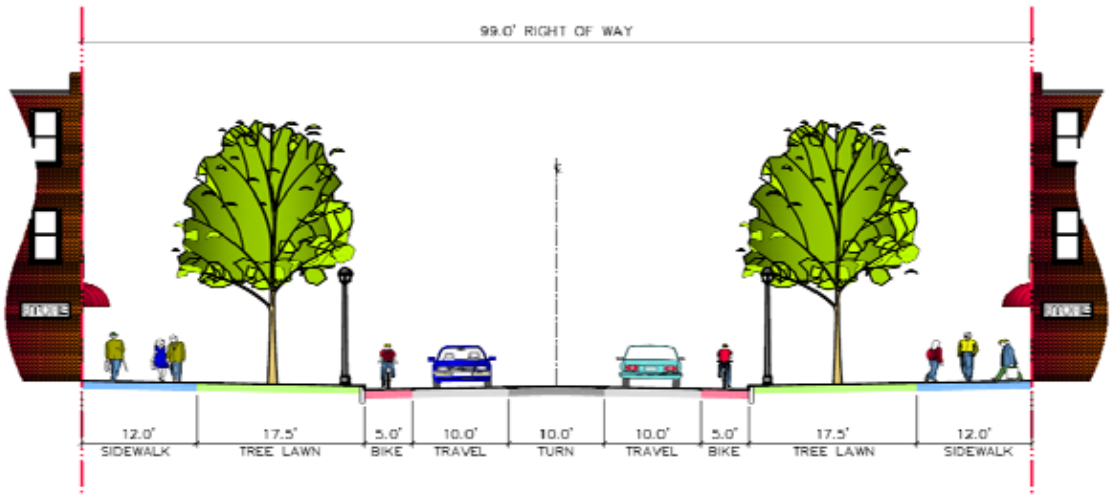
Alternative Descriptions:

The five alternatives are discussed below with example cross-sections. Only one cross-section was developed for Alternatives 1 and 5, because no changes are proposed for the roadway. However, Alternatives 2, 3, and 4 have customized cross-sections for different sections of the corridor, so a cross section that best represents the corresponding alternative is presented.

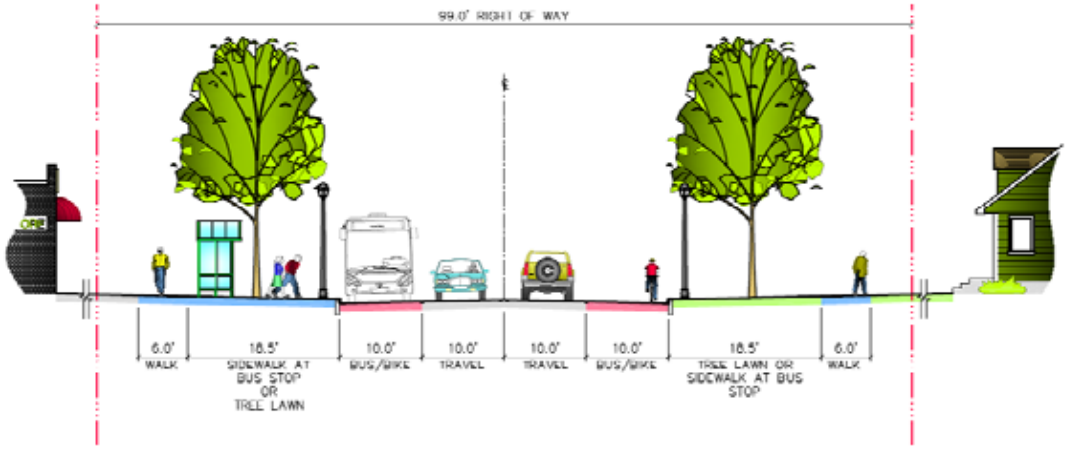
> ***Alternative 1 – No Build:*** Retains the existing road cross-section and lane allocations and maintains existing traffic signal timing. No changes to the roadway are proposed.



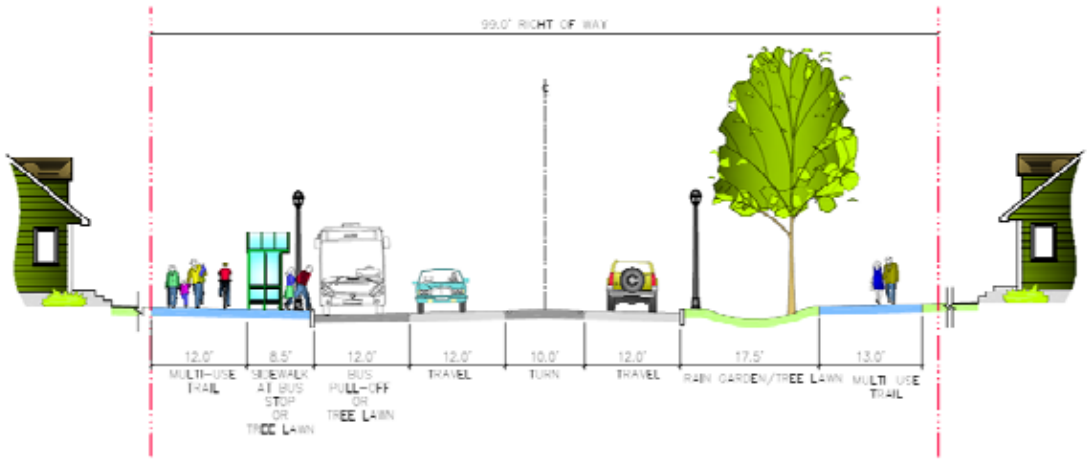
Alternative 2 – Pavement Reallocation: Modifications to the roadway with minimal changes to overall pavement width. The proposed section includes one travel lane in each direction with center two-way left-turn lane and dedicated left-turn lanes at intersections. Extra pavement width is reallocated for on-street parking and/or an on-street bicycle lane. Bus pull off areas are also required.



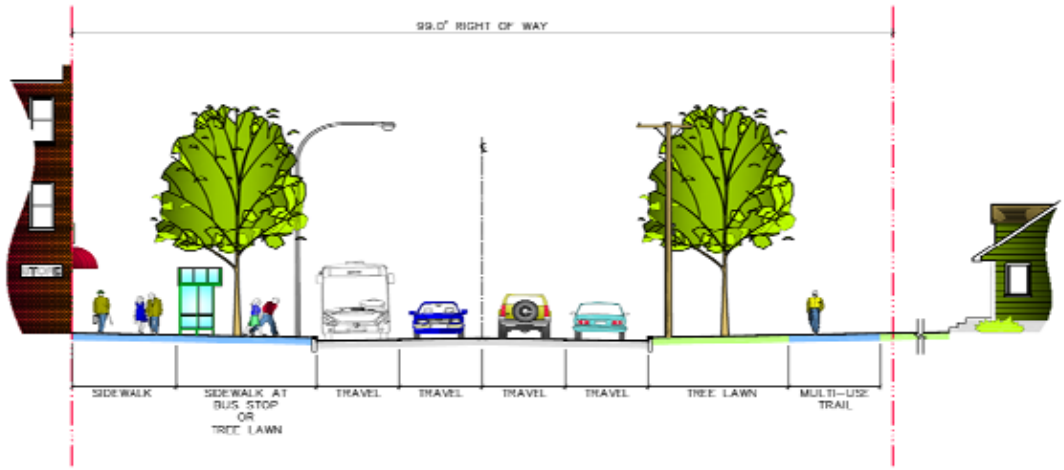
Alternative 3 – Enhanced Transit: Reallocates the existing pavement, with the existing outside travel lane in each direction dedicated for use solely by transit vehicles and bicycles. This alternative allows for enhanced transit service along James Street while still providing on-street bicycle facilities with bikes sharing a transit lane. Approaches at signalized intersections need to be widened to accommodate dedicated left-turn lanes.



Alternative 4 – Roadway Reconstruction: Proposes converting the existing four-lane section to a three-lane (or a shared car/bike lane section between Teall Ave. and Shotwell Park). In some areas, the roadway will be widened to allow for alternative transportation modes or on-street parking. In other areas, roadway reconstruction may reduce pavement width to accommodate more greenspace. This alternative would provide an off-street multi-use path on both sides of the street along the Urban Multiple Use and Urban Residential portions of the corridor and introduces green stormwater drainage options. Bus pull off areas are also required.



Alternative 5 – Traffic Signal Coordination without Road Diet Element: Proposes optimizing and coordinating traffic signals along the corridor to reduce delay. Pedestrian and transit improvements (e.g., widening sidewalks, adding bus shelters, etc.) as well as aesthetic enhancements (e.g., infilling street trees, installing ornamental lampposts, etc.) can be incorporated into this alternative.



Optional Alternative Elements

The following elements are optional and could be considered for inclusion to enhance each alternative:

Consolidation of Transit Stops
Where the opportunity exists, existing transit stops along James Street could be consolidated to reduce the frequency of stops. The remaining major transit stops should be placed at distances that meet Centro's parameters and, where feasible, enhanced with shelters and other features.

Bus Pull-Offs
Buses making stops are removed from the travel lane in Alternatives 2 and 4 so as to not interfere with the flow of vehicular traffic. Bus pull-offs should be at least twelve feet wide, and in some cases, they would have to be placed within the existing tree lawn. There may be areas where the sidewalk would need to be relocated to allow for a full bus pull-off or the bus pull-off would need to be slightly narrower than recommended. Bus pull-offs are not needed in Alternative 3, where there is a dedicated lane for buses.

Transit Shelter
The installation of bus shelters and trash receptacles is encouraged at bus stops that meet certain criteria of usage.

Signal Preemption
Allowing buses to control phasing of traffic signals and placing stops at the far side of intersections would make it easier to avoid conflicts with automotive traffic.

Sidewalk Improvements
Pedestrian facilities and crosswalks could be upgraded according to ADA standards. Sidewalks could be improved where conditions have deteriorated and widened to a minimum width of 5 feet where needed to enhance pedestrian use. Throughout the segment of James Street between Oswego Boulevard and North State Street, a grade or barrier separated path located within the sidewalk area to accommodate bicycles should be considered.

Bus Stop Access Improvements
Pedestrian access to bus stops could be improved so that passengers will not have to cross steep grades or tree lawn areas to get to the bus stop.

Bicycle Improvements
Bicycle racks placed at strategic locations throughout the corridor would provide parking for bicycles and encourage more bicycle use

Street Trees

Street trees that have been removed or are damaged could be replaced with a mix of urban tolerant street trees to maintain and enhance the vast tree canopy that exists throughout the corridor.

Lighting
Overhead street lights could be replaced with pedestrian-level, energy-efficient lighting that meets sustainability objectives.

Gateway Improvements
Aesthetic improvements will focus on the gateways to/ from the James Street corridor. Enhancements to the western gateway, along with improved lighting and sidewalks beneath the viaduct, will improve pedestrian/ bicycle safety and comfort. Enhancements should also be provided at the eastern gateway to transition from the residential area of James Street into Eastwood.

Access Management Improvements
Access control and elimination of mid-block curb cuts are encouraged throughout the Urban Core area. Eliminating curb cuts keeps turning movements to intersections, increasing safety and improving traffic efficiency. Alternative access to parcels can be provided from side streets. Managing access improves pedestrian safety and promotes an urban village character extending from Downtown east to Lodi Street. The areas where curb cuts are removed can be reclaimed for landscaping and could be used for green stormwater management areas. A phased approach would be required, with improvements implemented as redevelopment occurs or funding becomes available.

Traffic Analysis

Traffic operations in the James Street corridor were analyzed for each of the roadway alternatives under 2030 traffic conditions. Historical traffic volumes for the James Street corridor equate to an average annual linear growth in traffic of approximately 0.8% per year over the past 17 years. A linear growth rate of 1% per year was recommended to maintain a conservative estimate of future traffic volumes in the corridor for this road diet study. The traffic volumes for the northbound and southbound movements of North Townsend Street and North State Street were grown annually by 2% to account for known future development in the Downtown and Prospect Hill areas.

The analysis shows operational LOS as well as arterial and network measures of effectiveness (MOE) for use in comparing the five study alternatives. The MOEs included travel time through the corridor, signal delay time (amount of time spent stopped at traffic signals), average speed, total network delay (including delays experienced by cars at side streets entering James Street), and network fuel consumption.

The analysis found that LOS within the corridor can be maintained or improved under Alternatives 2, 3, 4, and 5 as compared to Alternative 1 (No Build). The analysis found that lane reductions will likely result in increases in queue lengths along James Street. The intersection of James Street with Shotwell Park and Grant Boulevard will continue to operate at an unacceptable LOS on the Grant Boulevard approach during both peak hours under any scenario, including Alternative 1.

The intersection of James Street/ Shotwell Park/ Grant Boulevard requires special attention. Therefore, two intersection design concepts were developed for this intersection that can be incorporated into any one of the alternatives. The results of the capacity analysis indicate that the two intersection concepts can provide substantial improvements in overall operations compared to the null alternative. One concept is a five-legged signalized intersection. The second concept is a roundabout. No single alternative proposes incorporating these concepts, and all alternatives will work with or without improvements to this intersection.

Alternatives 2, 3, or 4 would result in minor decreases in total travel time, and the overall network would see a 25%-30% reduction in total delay time, a 5% overall decrease in the number of stops during the evening peak hour, and 9%-14% reduction in overall fuel consumption during the peak hours. These benefits are primarily due to traffic signal coordination, as indicated by the results of Alternative 5, which included signal coordination with no change in lane configuration. LOS is generally improved under Alternative 5, with the exception of the Shotwell Park and Grant Boulevard intersection. Travel time is reduced, and the overall network would see a 36%-40% reduction in total delay time, a 10%-11% overall decrease in the number of stops during each peak hour, and 15%-19% reduction in overall fuel consumption during the peak hours.

Evaluation and Conclusions

The SMTC and Wendel used the goals and objectives, the results of the traffic analysis, and feedback from the SAC and the public to inform the conclusions of the study. As a result, this study yielded two options for potential implementation by the study sponsor. The project sponsor should evaluate all this input prior to implementation.

Alternative 5 best meets the public's expressed desire not to reduce travel lanes on James Street. Many members of the public expressed an interest in improving traffic flow through the corridor for motorists and felt that Alternative 5 best met this aim while also providing an opportunity for an off-street multi-use path for bicyclists. Several participants indicated a willingness to lose some greenspace and increase impervious surface to better accommodate bicyclists throughout the corridor. Although the public generally expressed a willingness to sacrifice greenspace, they wish to preserve and enhance the street tree canopy.

However, the alternative that best meets the goals and objectives of this study is Alternative 2. Alternative 2 met all of the objectives (although 8 objectives were considered only "somewhat met"). The general feeling of the public was that they desired a roadway that improved traffic flow but that provided for other modes of transportation without impacting vehicle flow. Alternative 2 will actually accommodate both by improving traffic flow and providing for other modes of transportation. Alternative 5 provides an off-street paved bicycle path, however, reaching a width of 12-13 feet for this multi-use path would likely require cutting into the expansive tree lawn, impacting street trees and adjacent lawn areas. In addition, Alternative 5 would require widening at the majority of signalized intersections in order to provide for dedicated left-turn lanes. The public was opposed to losing any of the trees and did not want an alternative that impacted adjacent greenspace or lawn areas. Implementing Alternative 5 without disturbing the street trees or adjacent lawn area is not feasible. Additionally, Alternative

5 does not enhance transit opportunities, as buses would continue to make stops in the travel lane and stops would not be consolidated.

The project sponsor requested that an implementation plan consisting of short, medium and long-term steps be summarized for the alternative that best met the original intent, goals, and objectives of the study. In the short term, the following steps outline the alternative that best meets the goals and objectives of the study- Alternative 2. Alternative 2 requires the least curb relocation and roadway reconstruction and is the best fit within the confines of the existing roadway. If the roadway ever undergoes major reconstruction, the City could also consider implementing Alternative 4, which goes a step further in providing road diet strategies. It will be the responsibility of the roadway owner (City of Syracuse) and other facility owners (Centro) to implement any roadway improvements.

Conceptual Opinions of Probable Costs were developed for each stage of the implementation plan. These costs are conceptual in nature and highly variable based on refinement of the scope of improvements during detailed design. The conceptual costs were developed using information obtained from the New York State Department of Transportation weighted average bid pricing as well as information from the City of Syracuse. All costs reflect Fall 2011 pricing and include a 30% contingency for unknown factors.

Project Implementation Plan

Short Term Improvements

- Mill and overlay necessary segments to reestablish the crown of the roadway.
- Restripe roadway to appropriate cross-section.
- Consolidate bus stops.
- Enhance bus stops by improving access and providing bus shelters where warranted, benches (benches are provided inside bus shelters only; Centro does not install stand alone benches), trash receptacles, etc. Centro has limited ability to remove snow from its facilities, so maintenance provisions/agreements would need to be established with other during the winter. When formally requested, Centro will install a trash receptacle(s) at a bus stop/shelter, however Centro does not provide waste removal services and thus a maintenance provision/agreement with others to provide such services would be required.
- Coordinate traffic signals.
- Provide off-street bicycle lane between Oswego Boulevard and North State Street to provide bicycle connection to Downtown Syracuse.

The Opinion of Probable Cost for Short Term Improvements is $1,800,000.00.

Mid-Term Improvements

- Construct bus pull-offs.
- Develop transit vehicle signal preemption.
- Infill street trees/ replace trees in poor conditions.
- Install bicycle racks.

- Improve sidewalks and crosswalks, bring into ADA compliance.
- Replace existing street lights with aesthetic light standards that are energy efficient.
- Provide pedestrian level lighting.
- Enhance gateways.
- Construct dedicated eastbound right-turn lane at Teall Avenue.
- Construct stormwater bioswale and rain garden areas.

The Opinion of Probable Cost for Mid Term Improvements is $2,500,000.00.

Long-Term Improvements

- Roadway reconstruction to attain Alternative 4 cross-sections.
- Achieve access control along James Street within the Urban Core, with access provided via side streets and alleys.

The Opinion of Probable Cost for Long Term Improvements is highly variable due to unknowns associated with full depth reconstruction. These unknowns include the impacts of related utility work, implementation of green infrastructure elements and the needs for construction phasing. Accordingly, the cost of Long Term Improvements would be in the range of $8 to $12 million.

1.0 Introduction

1.1 Study Purpose

The Syracuse Metropolitan Transportation Council (SMTC) undertook the James Street Road Diet Study on behalf of the City of Syracuse. This study examined the feasibility of a "road diet" for the James Street corridor.

A "road diet" involves a reduction or modification of travel lanes with the intent of calming traffic speeds, improving safety, enhancing the streetscape, and providing opportunities for alternative transportation modes. Road diets are generally accomplished within the existing limits of the pavement and right-of-way to limit their impact.

The City of Syracuse is considering a road diet scenario for James Street to calm traffic and enhance the corridor for all users (motorists, pedestrians, bicyclists, and transit users) without adversely affecting automobile traffic. The implementation of a road diet along James Street is consistent with the City's sustainability initiatives and has the potential to result in several positive impacts, such as:

- Increased mobility and accessibility
- Improved traffic operations
- Improved safety
- Enhanced quality of life

The SMTC retained Wendel Duchscherer Architects & Engineers (Wendel) to provide professional consultation in determining the feasibility of implementing road diet measures and developing alternative road diet concepts.

1.2 Study Process

This study included the following general steps:

- Data collection and existing conditions assessment
- "Fatal Flaw" analysis
- Development of study area goals and objectives
- Development of roadway alternatives
- Evaluation of alternatives
- Development of recommendations and implementation plan

The Fatal Flaw analysis evaluated future (2030) traffic operations assuming a reduction to one travel lane in each direction with a center turn lane throughout the corridor. This analysis was completed to determine if a road diet option was feasible for the corridor before proceeding with a more detailed development and evaluation of future alternatives. This analysis included a cursory evaluation of transit operations. The Fatal Flaw analysis concluded that: (a) a road was feasible and warranted further analysis and (b) any future alternatives that include a reduction in the

number of travel lanes must allow for buses to stop outside of the travel lane. See Appendix A for a full discussion of the Fatal Flaw analysis.

2.0 Public Involvement Plan

The James Street Road Diet Study was developed with significant public involvement. SMTC developed a Public Involvement Plan (PIP), which is included in Appendix B, for the study that embraces early and continuous public and stakeholder participation.

The goals of the James Street Road Diet PIP were to:

(1) Create public awareness relative to the study's goals, objectives, and process, as well as publicize the public participation opportunities and activities available throughout the study; and,

(2) Involve the public throughout the planning process.

The PIP included the formation of two groups to assist the SMTC and Wendel in the study effort: a Study Advisory Committee (SAC) and a stakeholders group. The following agencies were represented on the SAC:

- New York State Department of Transportation (NYSDOT)
- Central New York Regional Transportation Authority (Centro)
- Syracuse Onondaga County Planning Agency (SOCPA)
- City of Syracuse, Engineering Department
- City of Syracuse, Department of Public Works
- City of Syracuse, Bureau of Planning and Sustainability
- City of Syracuse, Police Department
- City of Syracuse, Fire Department
- Syracuse City School District (Lincoln Middle School)
- Disabled-in-Action of Greater Syracuse

The SAC met with the SMTC/Wendel throughout the process to assist in managing and developing the study, provide advice on the technical content of deliverables, as well as provide needed input and guidance on the study. A total of four SAC meetings were held throughout the course of the study.

The study included two public meetings. At the first public meeting, SMTC and Wendel formally introduced the study to the public, reviewed the inventory of existing conditions, presented the results of the Fatal Flaw analysis, discussed issues and opportunities associated with the corridor, and confirmed the goals and preliminary vision for the corridor. Wendel then used the input it received from the public to develop objectives for each goal. The goals and objectives were later used to help guide the development of the alternatives, and subsequently served as one input into the evaluation

of the alternatives. The second public meeting provided the public an opportunity to comment on the alternatives.

3.0 Study Area and Background

The James Street Road Diet study focused on the James Street corridor from Oswego Boulevard in Downtown Syracuse to Shotwell Park/Grant Boulevard in Eastwood (see Map 1 – Study Area).

3.1 Corridor Characteristics

The western portion of James Street was historically developed as a residential corridor consisting of grand mansions built in the nineteenth century. Many of the residences west of Sedgwick Street were replaced throughout the second half of the twentieth century by offices or apartment buildings, giving this portion of the corridor a denser, more mixed-use character. Most of the newer commercial buildings in this portion of the corridor are spaced apart and provide off-street parking for their employees and clients, while many of the high-rise apartments provide limited off-street parking. Some remaining large, former residential buildings have been converted to offices. The eastern portion of the James Street corridor, between Sedgwick Street and Shotwell Park, consists of residences constructed primarily between 1900 and 1930, reflecting a variety of architectural styles.

From a transportation standpoint, James Street is a major commuter route connecting Eastwood and points further east with Downtown Syracuse. Today, Interstate 690 provides an alternative route to/from downtown Syracuse.

3.2 Existing Plans

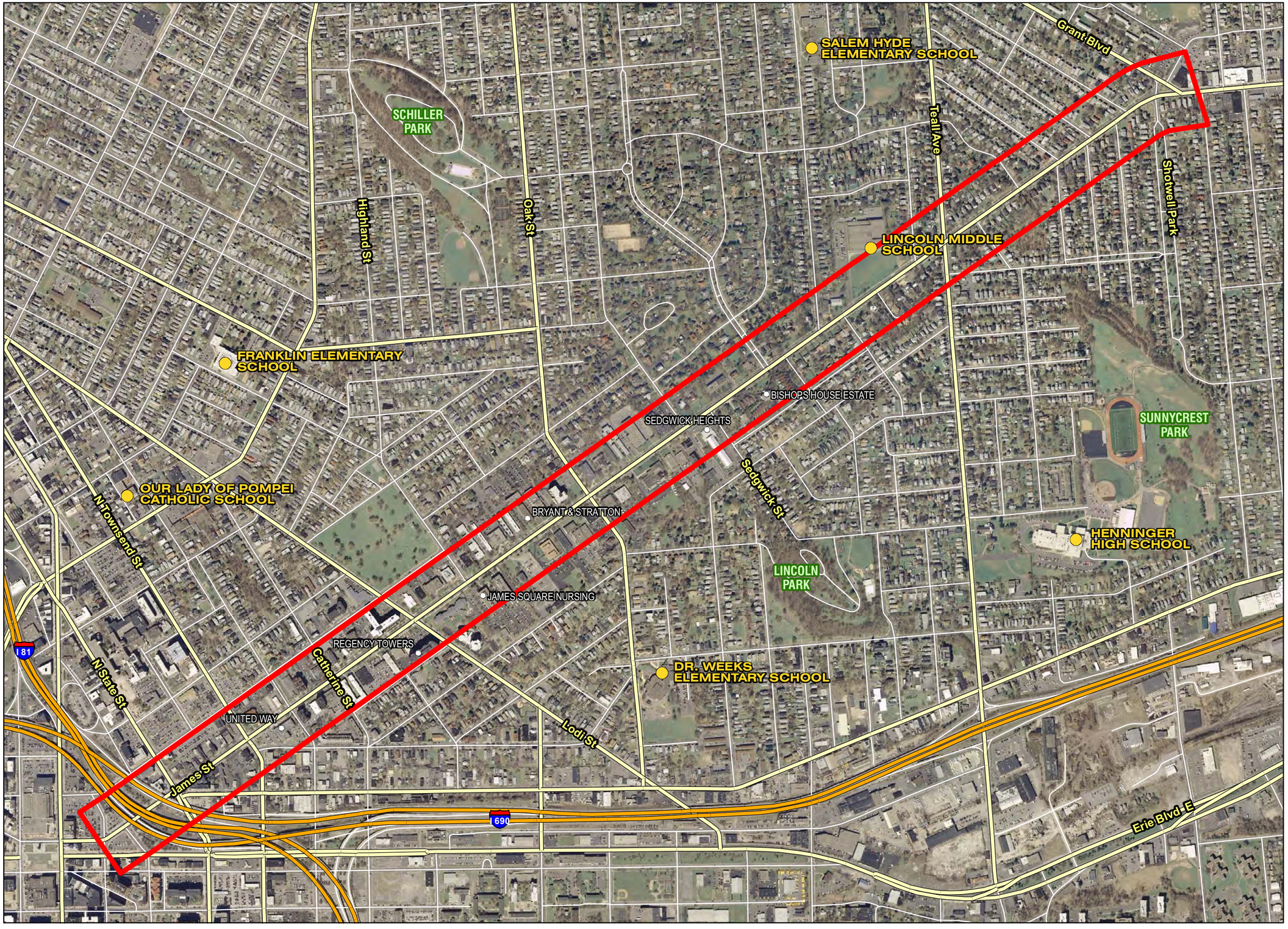
Existing plans and studies were reviewed and evaluated to ensure that the overall vision of the James Street Road Diet study and any alternatives developed as part of the study would be consistent with the vision of the community and be coordinated with any other neighborhood planning efforts.

3.2.1 City of Syracuse Comprehensive Plan

As a general policy, the City's Comprehensive Plan sets forth a number of visionary goals geared towards promoting mixed-use, pedestrian-friendly neighborhoods that promote connectivity, accessibility, and livability.

The Comprehensive Plan identifies James Street as a regionally significant corridor and calls for these corridors to provide access to communities outside of the City's geographic boundaries, serve as a major gateway into the City, and accommodate a mix of transportation modes.

Syracuse is grouped into eight "planning areas" through the City's "Tomorrow's Neighborhoods Today (TNT)" program. The James Street corridor falls within the Downtown, Northside, and Eastwood TNT areas. Each TNT area has their own neighborhood plan that promotes coordination with the community and enhancing the character and livability of the neighborhood.



SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 1
STUDY AREA

N
W E
S

LEGEND

- Study Area
- Interstate
- Major Roadway
- Places
- School

0 150 300 600
Feet

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

3.2.2 Syracuse Land Use Plan

The City is currently working on an update to the existing land use plan. The update sets forth a future land use vision for the city and each of its TNT planning neighborhoods. The Character Zones identified in the James Street Road Diet are generally consistent with the draft land use categories identified in the land use plan.

The Plan calls for Urban Mixed Use within the downtown portion of the James Street corridor. The eastern portion next to the urban mixed use area falls within the Urban Core future land use area. There is a Medium Density land use area identified near DeWitt Street and Sedgwick Street. Future land use categories for the eastern portion of James Street include Low-Density (1&2 Family) Residential. Land use categories identified in the draft Syracuse Land Use Plan are defined in Table 1.

Table 1: Syracuse Land Use Plan – Land Use Categories

Land Use Category	Description
Urban Mixed-Use	Pedestrian-oriented commercial found on the ground floor. Office, Residential and Commercial above. Live-work lofts, community Garden/Urban Ag in limited instances. Traditional, urban, mixed use attached row buildings (multi-story, large storefront windows, minimal setback). "Streetcar" style apartment buildings. No parking in the setback. Parking should be kept to the center of blocks and accessed from side streets when possible. Limit curb cuts on major streets.
Medium-Density Residential	(Single or mixed-uses; mostly residential) Residential Community uses such as schools, libraries, churches, and community centers. Office. Small-to-medium scale commercial: small-scale retail, services, etc. (No more than 5,000 sq. ft.) Community Garden/Urban Ag. A mix of detached one-, two-, three-, and up to multi-unit residences (may be converted for small scale office/commercial use.) Row-houses. "Streetcar" style apartment buildings. Occasional scattered small, traditional storefront commercial buildings. No parking in the setback. Parking must be screened and landscaped when large parking lots are present.
Low-Density Residential	Residential community uses such as schools, libraries, churches, and community centers. Low-impact commercial: office, small-scale retail, services (on non-local roads, preferred at corners. No more than 3,500 sq. ft.) Community Gardens; Urban Ag. In some instances. Detached one- and two-family houses. Occasional small, traditional storefront commercial buildings (usually at intersections on major streets with minimal setback from the sidewalk and no taller than surrounding houses). No parking in the setback. Detached garages often found at the rear of the site. Parking must be screened and landscaped when large parking lots are present.
Urban Core	Commercial and mixed use with a preference for pedestrian-heavy uses on the ground floor. (Residential, Office) Minimal setback, typically taller than 6 stories, mixed-use buildings; pedestrian oriented. No parking in the setback.

3.2.3 Onondaga County Settlement Plan – Transportation Policies

The Onondaga County Settlement Plan includes policies to guide the County's infrastructure planning. It also sets forth recommendations for use by individual municipalities. The policies focus upon coordinating transportation and land use, with the goal of developing transportation infrastructure that supports the viability of neighborhoods and that accommodates all modes of travel.

3.2.4 Onondaga County Settlement Plan – Pilot Project 2: Butternut Sector Urban Neighborhood Improvement

The Onondaga County Settlement Plan consists of several pilot projects that offer planning techniques for various neighborhood types. One of the pilot projects covers a neighborhood in the City of Syracuse called Butternut and offers planning techniques that can be used in other mixed-use urban neighborhoods. A portion of James Street, from west of Lodi Street to east of DeWitt Street falls within this planning area. The Plan calls for using a transect approach to planning, which focuses on the form, setting, and style of buildings, rather than with use. The transect approach establishes building form based upon street and neighborhood character. The Plan places the area along James Street into the "urban core" transect, which calls for taller buildings and higher density development. This urban character focuses on walkability and an urban character to the streetscape.

3.2.5 SMTC Long Range Transportation Plan

The Long-Range Transportation Plan (LRTP) 2011 Update guides the funding and construction of transportation projects throughout the Syracuse Metropolitan Area over a 25-year period. The 2011 Update calls for coordination of land use and transportation policies, accommodation of all modes of transportation, maintenance of existing infrastructure, ensuring a safe transportation system, providing for economic development opportunities, and consideration of the environment.

Overall, the vision of the James Street Road Diet study complies with the above plans and will aid in implementing and realizing the goals and objectives of each plan.

3.3 Character Zones

The James Street Road Diet study reflects a growing trend in transportation planning to develop roadways that fit the context or character of the surrounding neighborhood. There is a growing realization that the uses along the roadway should also be taken into consideration when planning transportation improvements, rather than focusing solely on traffic operations. Roadways should be designed for all users and accommodate all transportation modes. This approach also recognizes that project development should involve early and continuous public and stakeholder participation throughout the planning, design, and construction process.

The design of a roadway can have a significant impact on the character of the surrounding neighborhood and can affect the way people relate to the corridor. One of the techniques used to ensure that the design of a roadway complies with the character of a neighborhood is to identify character zones. Design standards guiding roadway features vary by character zone to ensure that the roadway fits within the context of the neighborhood. Within the study area, there are three distinct character zones along the James Street corridor within that were created as part of this

study: Urban Core, Urban Multiple Use, and Urban Residential (see Map 2- Character Zones). Please note that these character zones are distinct from the Character Areas identified in the Syracuse Land Use Plan. However, while slightly different, the character zones generally reflect the City of Syracuse Land Use Plan future land use categories.

- ***Urban Core*** – Oswego Boulevard to Lodi Street. This character zone consists of buildings developed close to the sidewalk with minimal side setbacks. Sidewalks are a generous width to accommodate higher pedestrian volumes. Uses within this character zone consist of office and apartment buildings, a gas station, church, and public parking lots. The majority of the span of James Street between Oswego Boulevard and North State Street lies beneath the I-81/I-690 viaduct, resulting in a tunnel-like atmosphere.

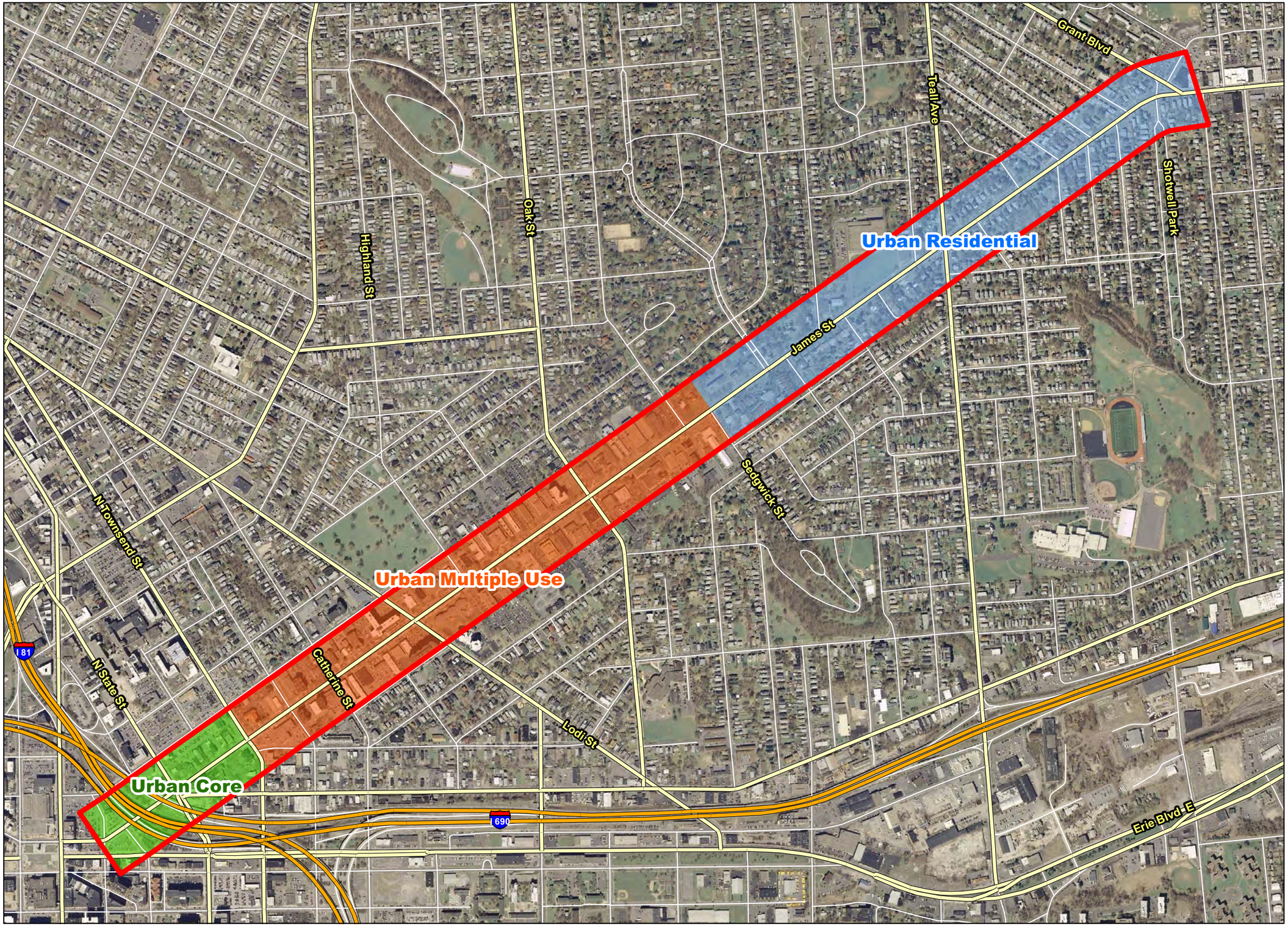
View of James Street Urban Core Character Zone, looking east

- ***Urban Multiple Use*** – Lodi Street to Sedgwick Street. This character zone consists of a mix of single-use buildings comprised of offices, high and low rise apartment buildings, and single family residences. Buildings are generally setback from the sidewalk and some contain generous front lawns. There are several parking lots that are located on the side or front of buildings that are visible from the street.

View of James Street Urban Multiple Use Character Zone, looking west.

- ***Urban Residential*** – Sedgwick Street to Shotwell Park. This character zone consists of one and two family residences, each with individual driveways and front lawn areas, and scattered apartment buildings. Some of the residences contain home businesses. Sidewalks are narrower reflecting the residential character of the area, and several are edged with shrubs to define the front lawns of adjacent residences.

View of James Street Urban Residential Character Zone, looking west.



SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 2
CHARACTER ZONES

N
W E
S

LEGEND

- Study Area
- Interstate
- Major Roadway

Character Zones

- Urban Core
- Urban Multiple Use
- Urban Residential

0 150 300 600
Feet

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery

4.0 Existing Conditions Assessment

A vital component of the James Street Road Diet study was the collection and review of data to understand and fully assess the existing conditions of the corridor. To complete this task, Wendel collected existing data from the SMTC, City of Syracuse, Onondaga County, and Centro. Any data that was not available was collected through field survey of the corridor by Wendel or SMTC staff. Assessment of conditions was based upon an evaluation of data as well as input from the SAC and public. Input from the public was obtained through a public meeting held on October 7, 2010, and through comment received during the comment period (a summary of this meeting is provided in Appendix B). The assessment of conditions provides a glimpse into "what about the corridor should be preserved and enhanced" and "what about the corridor requires special attention."

4.1 Existing Land Use

In general, the strength of the James Street corridor is the dense, urban, multiple use makeup that encourages and supports alternative modes of transportation. The existing land use of the James Street corridor is clearly defined by commercial and high density residential uses west of Sedgwick Street with single-family residential uses and home businesses east of Sedgwick Street (see Maps 3a-3c – Land Use).

Specifically, the area between Oswego Boulevard and North State Street consists of surface parking lots serving downtown interests. A mix of offices, apartments, assisted care facilities, community clubs, charitable foundations, and churches exists in the area between North State Street and Sedgwick Street, including Econo Lodge, Century Club, United Way, Skyline Apartments, Regency Towers, Syracuse Behavioral Health, James Square Nursing, Corinthian Club, Bryant & Stratton, St. Joseph's Dialysis Center, Farmers & Traders Insurance, WTVH, WSTM, and WAQX. Townhouse developments are located on both sides of James Street, just to the east of Sedgwick Street, and one is located on the south side of James Street east of Wilson Street. There are several individual sites, especially within the Urban Multiple Use area, that are characterized by large front yard setbacks with abundant off-street parking located within the front yard. This often creates an environment that promotes driving and makes accessing the building via alternative transportation modes more difficult and less comfortable.

Lincoln Middle School is located on the north side of James Street west of Hampton Road, and the Eternal Hope Church is adjacent to the school. Otherwise, the eastern portion of the corridor is dominated by several large, historic homes that front James Street. Some of these historic homes are used as single or multi-family residences, while others have been converted to offices.

The portion of James Street between DeWitt Street and Teall Avenue is within the Sedgwick-Highland-James Local Preservation District. The purpose of this District is to preserve "one of the most important collections of historic residential architecture in the City of Syracuse."[1] The area is supported by the Sedgwick-Highland-James Preservation District Guidelines. Any alterations to existing buildings or new development proposed within the Sedgwick-Highland-James Preservation District must go through the design review process administered by the Syracuse Landmark Preservation Board. The Church of the Savior, at 437 James Street, is a City of

[1] Sedgwick-Highland-James Preservation District Guidelines & Standards, City of Syracuse Landmark Preservation Board, 2004.

Syracuse locally protected site, and is also subject to design review by the Syracuse Landmark Preservation Board.

The Hawley-Green National Register Historic District lies just to the south of the James Street corridor between North Townsend Street and Lodi Street. This area was added in 1979 for its architectural significance. The First English Lutheran Church at 501 James Street is listed on the National Register of Historic Places. The intent of the National Register of Historic Places and Districts is to identify sites and areas worthy of preservation and to make funding available for preservation of these areas. Being listed does not result in additional design or development provisions being placed on a property.

The residents of James Street are passionate about protecting the residential character between Sedgwick Street and Shotwell Park. While this area is less dense and primarily residential, the surrounding neighborhood's street grid provides sufficient access to James Street and encourages alternative transportation modes. Residents have felt threatened by expansion of the Urban Multiple Use area and the conversion and demolition of single family homes for higher density residential and commercial uses. The City's Comprehensive Plan and the establishment of the Sedgwick-Highland-James Preservation District are some of the tools put in place to preserve the residential character and stately historic homes of this portion of James Street. Neighborhood organizations dedicated to preserving the character of the corridor have been actively involved throughout the James Street Road Diet study.

4.2 Existing Zoning

The zoning of the James Street corridor relates relatively well to existing land use (see Maps 4a-4c – Zoning). Zoning between Oswego Boulevard and North Townsend Street includes CBD Office and Service District, CBD Office and Service District (Restricted), and Office District Class B. The area between North Townsend Street and Sedgwick Street consists of Office District Class B and Office District Class A. The area from Sedgwick Street to Shotwell Park consists of Residential District Class B-1 Transitional, Residential District Class A-2, Residential District Class A-1, Residential District Class A, and Residential District Class AA. City of Syracuse zoning categories are summarized in Table 2.

SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 3A
LAND USE

N
W E
S

LEGEND

- Study Area
- Parcel Boundary (2009)
- Interstate
- Major Roadway
- Sedgwick Preservation District
- National Registered Historic Site

Curb Cut (Land Use)

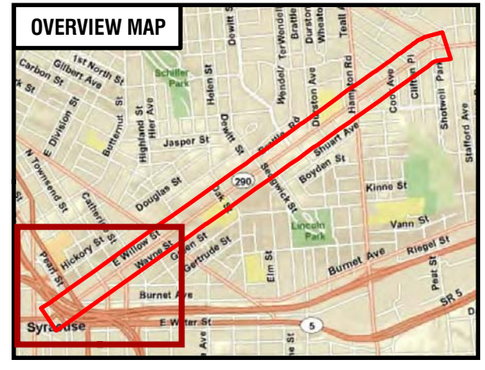
- Residential
- Commercial
- Recreation & Entertainment
- Community Services
- Public Services

LandUse

- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services
- Wild/Forested Land

0 50 100 200
Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 3B
LAND USE

LEGEND

- Study Area
- Parcel Boundary (2009)
- Interstate
- Major Roadway
- Sedgwick Preservation District
- National Registered Historic Site

Curb Cut (Land Use)

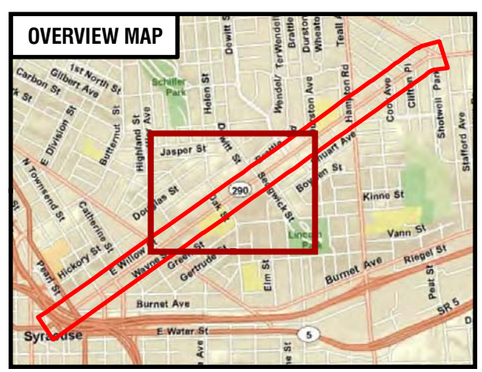
- Residential
- Commercial
- Recreation & Entertainment
- Community Services
- Public Services

LandUse

- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services
- Wild/Forested Land

0 50 100 200 Feet

OVERVIEW MAP



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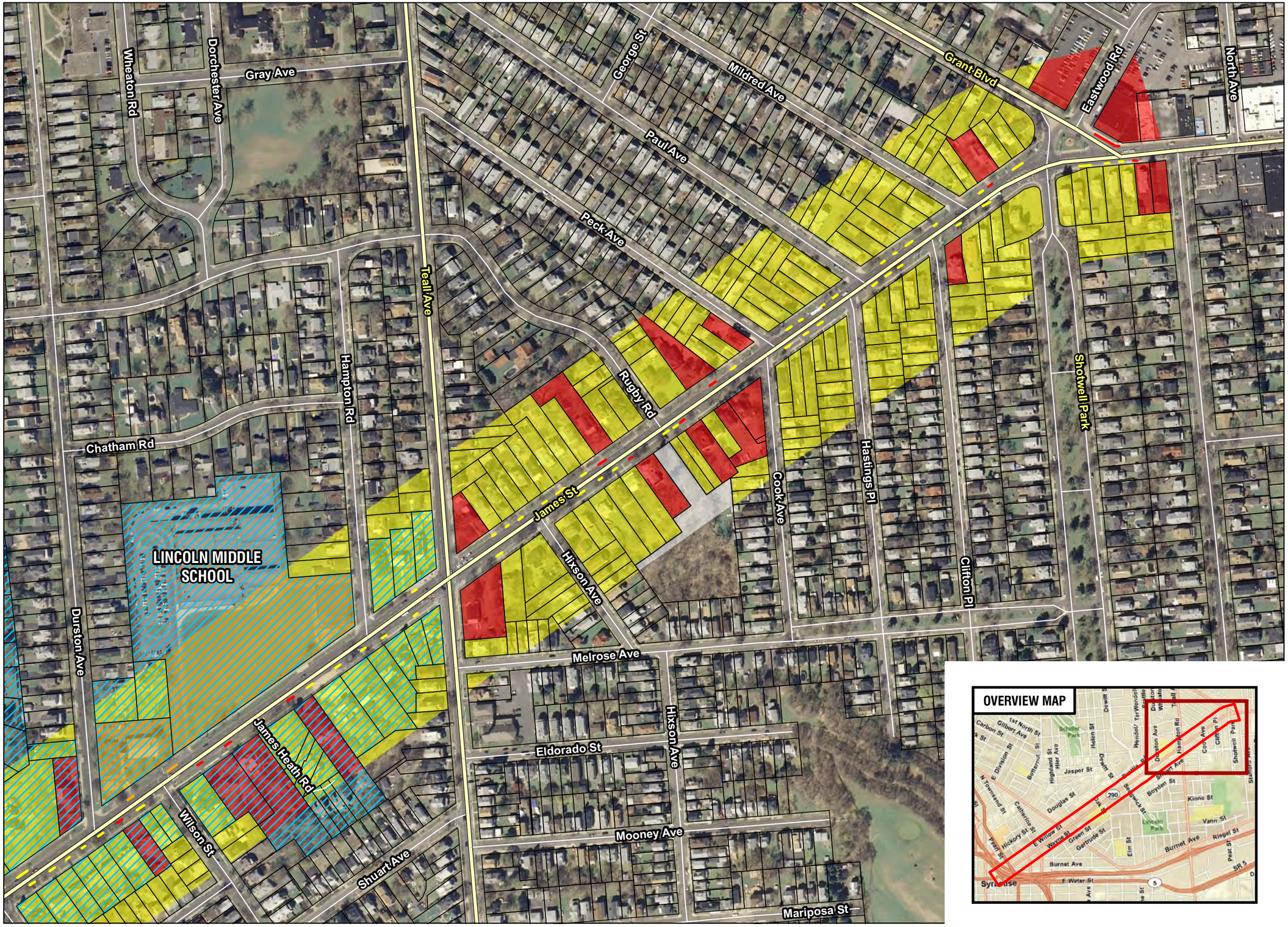
JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 3C
LAND USE



OVERVIEW MAP

LEGEND

- Study Area
- Parcel Boundary (2009)
- Interstate
- Major Roadway
- Sedgwick Preservation District
- National Registered Historic Site

Curb Cut (Land Use)

- Residential
- Commercial
- Recreation & Entertainment
- Community Services
- Public Services

LandUse

- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services
- Wild/Forested Land

0 50 100 200 Feet

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Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 4A
ZONING

LEGEND

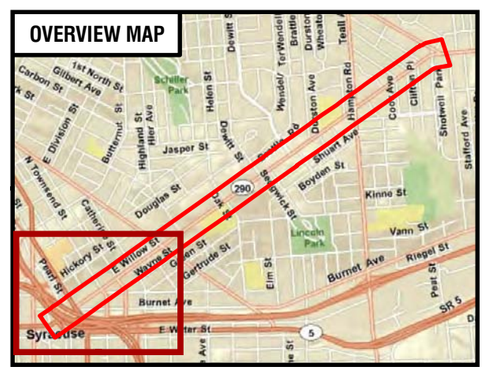
- Study Area
- Parce Boundary (2009)
- Interstate
- Major Roadway
- National Registered Historic Site

Zoning Districts

- CBD Office and Service (Restricted)
- CBD Office and Service District
- Commercial District, Class A
- Local Business District, Class A
- Office District, Class A
- Office District, Class B
- Planned Institutional District
- Residential District, Class A
- Residential District, Class A-1
- Residential District, Class A-2
- Residential District, Class AA
- Residential District, Class B
- Residential District, Class B-1 Transitional

0 50 100 200 Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 4B
ZONING

LEGEND

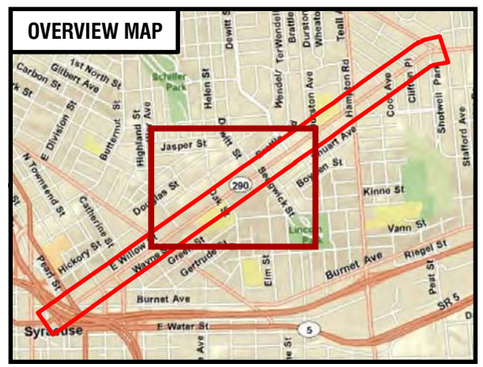
- Study Area
- Parce Boundary (2009)
- Interstate
- Major Roadway
- National Registered Historic Site

Zoning Districts

- CBD Office and Service (Restricted)
- CBD Office and Service District
- Commercial District, Class A
- Local Business District, Class A
- Office District, Class A
- Office District, Class B
- Planned Institutional District
- Residential District, Class A
- Residential District, Class A-1
- Residential District, Class A-2
- Residential District, Class AA
- Residential District, Class B
- Residential District, Class B-1 Transitional

0 50 100 200
Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: June, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 4C
ZONING

N
W E
S

LEGEND

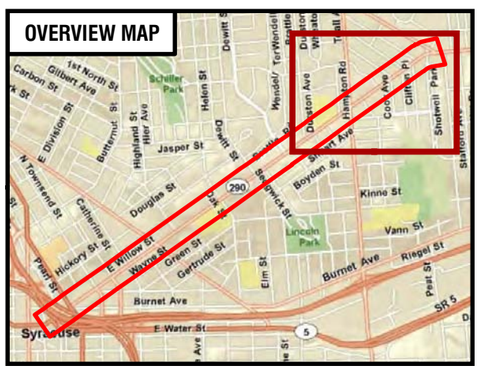
- Study Area
- Parce Boundary (2009)
- Interstate
- Major Roadway
- National Registered Historic Site

Zoning Districts

- CBD Office and Service (Restricted)
- CBD Office and Service District
- Commercial District, Class A
- Local Business District, Class A
- Office District, Class A
- Office District, Class B
- Planned Institutional District
- Residential District, Class A
- Residential District, Class A-1
- Residential District, Class A-2
- Residential District, Class AA
- Residential District, Class B
- Residential District, Class B-1 Transitional

0 50 100 200
Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

Table 2: City of Syracuse Zoning District Descriptions

Zoning Category	Description	Permitted Uses
Residential District Class A-1	Provide for areas within the City where the living environment associated with single-family residential development is preserved and/or where the development of such environment is encouraged.	Single family residential, schools, churches, recreational areas, municipal buildings, family day care.
Residential District Class A-2	Permit planned developments on sites within the City, which require flexibility in the regulations for building bulk and placement due to the nature of the topography, configuration of the site, and the desirability for the preservation of natural features, scenic areas, historic sites and open spaces.	Uses permitted in Residential District Class A-1 plus attached single family residential, day care centers,
Residential District Class A	Provide for one- and two-family dwellings within the City at a greater density than a single-family district, and to protect the basic low density character of areas developed with a mixture of one- and two-family dwellings.	Uses permitted in Residential District Class A-1 plus two-family residences and day care centers.
Residential District Class AA	Provide for areas within the City which permit on existing smaller-sized lots one- and two-family dwellings at a density slightly greater than that permitted in other one- and two-family districts, while protecting the amenities and characteristics associated with the low density residential development.	Uses permitted in Residential District Class A plus care homes, offices of religious and educational institutions, and bed and breakfast establishments by special use permit.
Residential District Class B-1 Transitional	Promote the development of land for residential and office uses compatible and desirable with adjacent low density residential areas regulated in such a manner so as to maintain and preserve the low density residential character of the adjacent area and to provide a transition between same and non-residential areas.	Uses permitted in Residential District Class AA plus multi-family developments. Offices are permitted by special use permit
Office District Class A	Permit the orderly and compatible development and expansion of office and apartment land uses.	Uses permitted in Residential Class B-1 Transitional plus offices, apartments, hotels/ motels, limited accessory commercial uses, radio and television stations.

Zoning Category	Description	Permitted Uses
Office District Class B	Permit the orderly and compatible development and expansion of office and apartment land uses.	Uses permitted in Office District Class A plus additional accessory commercial uses.
CBD Office and Service District	Serve as the administrative, financial, business, convention, and entertainment center of the Syracuse metropolitan area. This district should achieve higher intensity than other districts, but maintain a high degree of open space as well.	Retail and service establishments, offices, municipal buildings, and residential units on upper floors. Transportation terminals and indoor amusement establishments are permitted by special use permit.
CBD Office and Service District (Restricted)	Provide the same basic activities as the Office and Service District but with less intense development in order to protect adjacent residential districts and encourage large uses or activities that may be permitted to develop within the unrestricted Office and Service District.	Uses permitted in CBD Office and Service District but with less density.

4.3 Roadway Conditions

James Street is functionally classified as a principal arterial. In most areas, it consists of two travel lanes in each direction with no turn lanes, except at the following intersections: North State Street, North Townsend Street, Teall Avenue, and Grant Boulevard (see Maps 5a-5d – Roadway Conditions). The posted speed limit is 35 mph along the entire corridor. Near Lincoln Middle School, the school zone speed limit is 25 mph when school is in session.

4.3.1 Signalized Intersections

There are a total of twelve signalized intersections along the corridor. From west to east, the signalized intersections are as follows:

- Oswego Boulevard
- North State Street
- North Townsend Street
- North McBride Street
- Catherine Street
- Lodi Street
- Oak Street
- DeWitt Street
- Sedgwick Street
- Wilson Avenue
- Teall Avenue
- Grant Boulevard/Shotwell Park

4.3.2 Pavement/Lane Width

The width of James Street varies throughout the study area but is generally between 40 and 42 feet. The roadway is also wider at major intersections that contain turning lanes. Turning lanes are generally 10 feet wide. Lane configurations are outlined in Table 3.

Table 3: James Street Lane Configurations

James Street Corridor Section	Pavement Width	Inside Lane Width	Outside Lane Width
Oswego Boulevard to North State Street	46 feet	11 feet	12 feet
N. State Street to N. Townsend Street	52 feet	12 feet	14 feet
N. Townsend Street to N. McBride Street	42 feet	10 feet	11 feet
N. McBride Street to Wilson Street	40 feet	10 feet	10 feet
Wilson Street to Hampton Road	36 feet	8 feet	10 feet
Hampton Road to Hixson Avenue	40 feet	10 feet	10 feet
Hixson Avenue to Mildred Avenue	42 feet	10 feet	11 feet
Mildred Avenue to Shotwell Park	48 feet	12 feet	12 feet

The existing cross-sections (1-3) for the Urban Core, Urban Multiple Use, and Urban Residential areas of James Street are included following Maps 5a-5d.

The portion of James Street between Shotwell Park and Grant Boulevard consists of one 20-foot westbound lane and one 14-foot eastbound lane.

On-street parking is permitted along eastbound James Street between North State Street and North Townsend Street, although it is not striped. This parking lane is typically used as part of the outside travel lane. Parking is not permitted on James Street at any other location throughout the study area.

Typical existing roadway layout of James Street.

SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 5A

ROADWAY CONDITIONS

N
W E
S

LEGEND

- Study Area
- Interstate
- Pavement Area of Concern

Signalized Intersection

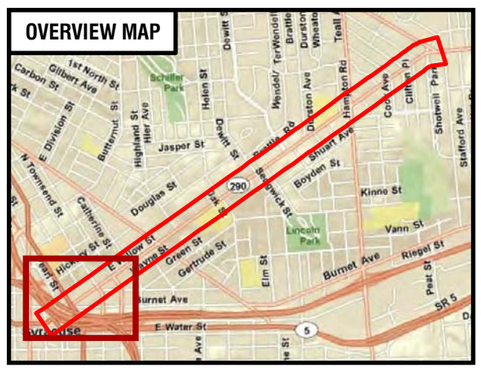
- Mast Arm Signal
- Span Wire Signal

Lane Width (Feet)

40'	15'
34'	14'
32'	12.5'
22'	12'
20'	11'
18'	10'
17'	8'
16'	

0 50 100 200 Feet

OVERVIEW MAP



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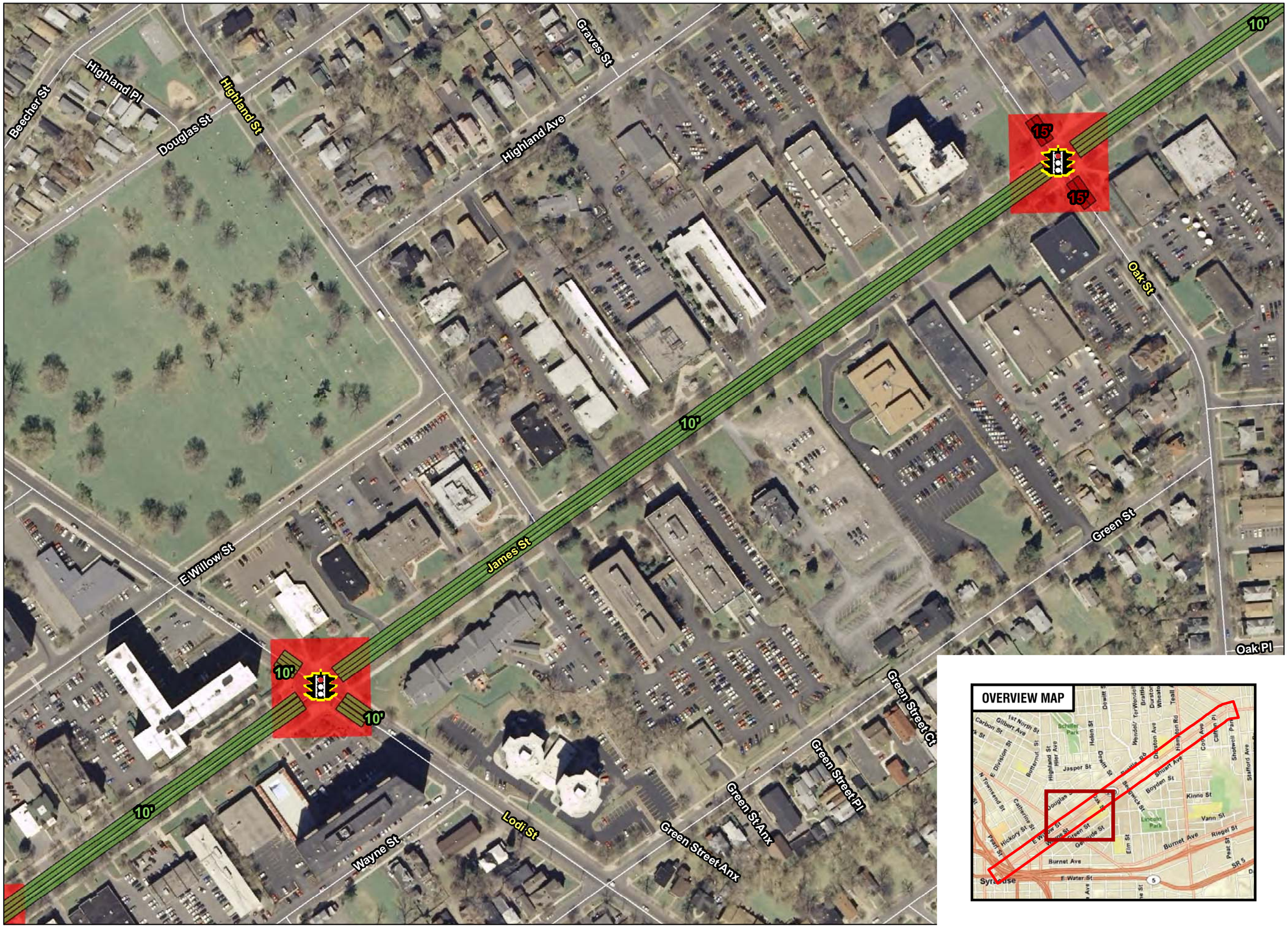
WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery



SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 5B

ROADWAY CONDITIONS

N
W E
S

LEGEND

- Study Area
- Interstate
- Pavement Area of Concern

Signalized Intersection

- Mast Arm Signal
- Span Wire Signal

Lane Width (Feet)

- 40'
- 34'
- 32'
- 22'
- 20'
- 18'
- 17'
- 16'
- 15'
- 14'
- 12.5'
- 12'
- 11'
- 10'
- 8'

0 50 100 200
Feet

OVERVIEW MAP

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR; 2006 1ft. Digital Orthoimagery

SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 5C

ROADWAY CONDITIONS

N
W E
S

LEGEND

- Study Area
- Interstate
- Pavement Area of Concern

Signalized Intersection

- Mast Arm Signal
- Span Wire Signal

Lane Width (Feet)

- 40'
- 34'
- 32'
- 22'
- 20'
- 18'
- 17'
- 16'
- 15'
- 14'
- 12.5'
- 12'
- 11'
- 10'
- 8'

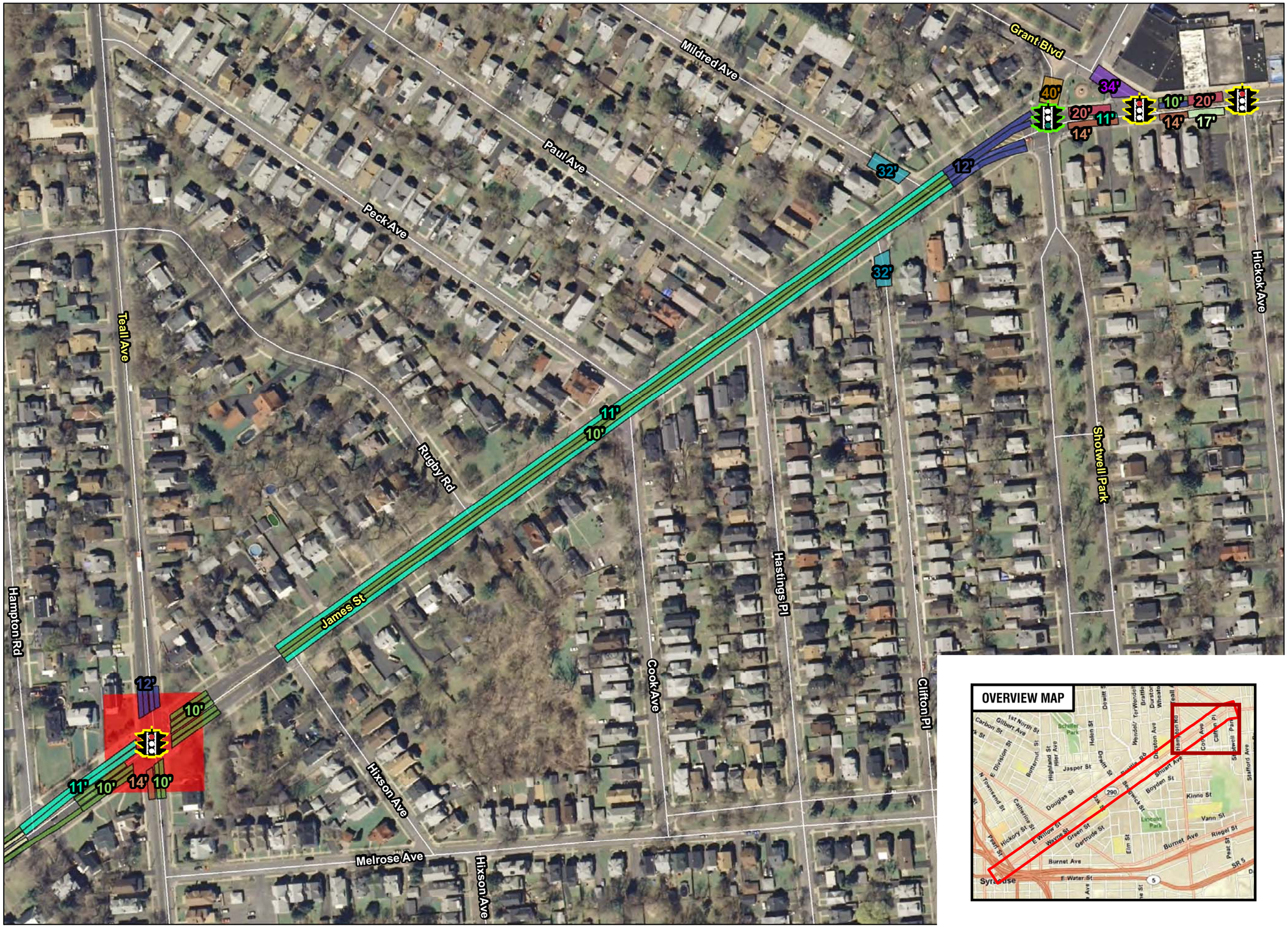
0 50 100 200
Feet

OVERVIEW MAP

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery



SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 5D

ROADWAY CONDITIONS

N
W E
S

LEGEND

- Study Area
- Interstate
- Pavement Area of Concern

Signalized Intersection

- Mast Arm Signal
- Span Wire Signal

Lane Width (Feet)

40'	15'
34'	14'
32'	12.5'
22'	12'
20'	11'
18'	10'
17'	8'
16'	

0 50 100 200
Feet

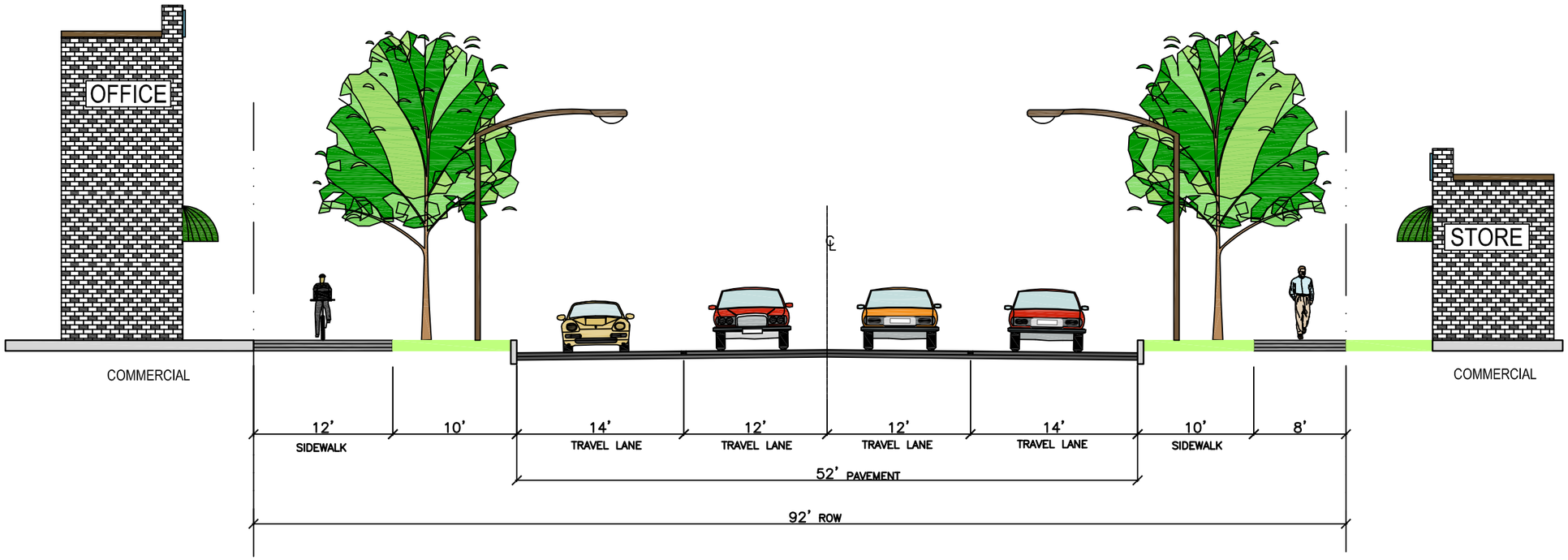
OVERVIEW MAP

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

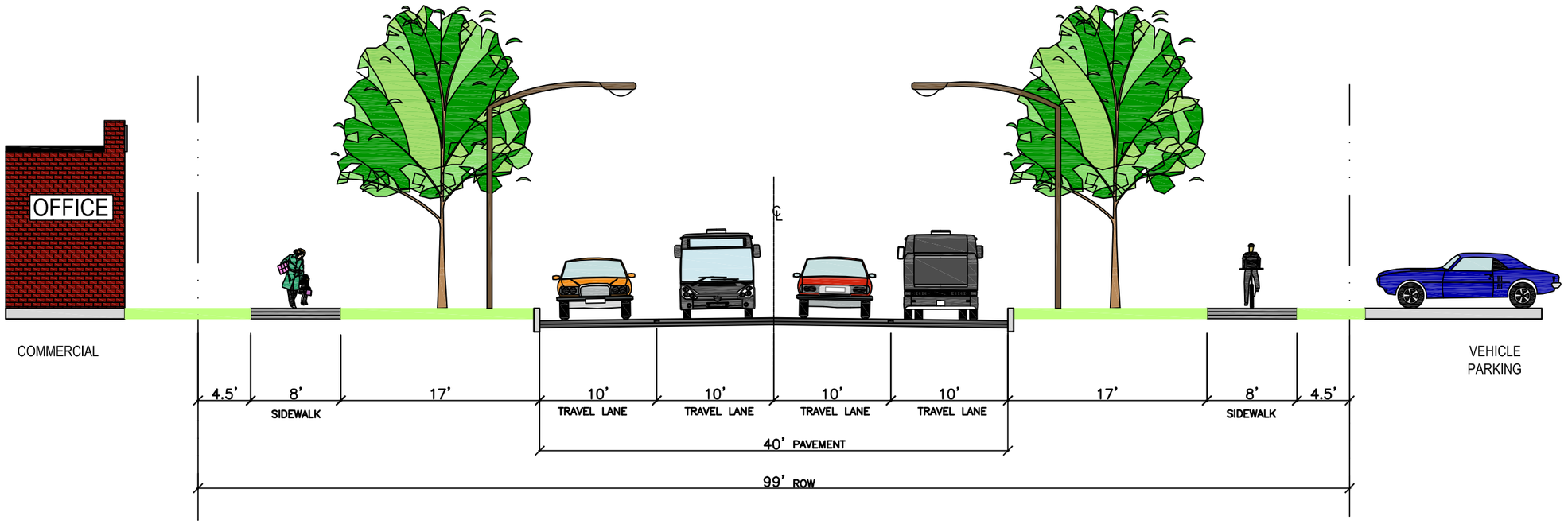
URBAN CORE

VIEW WESTBOUND



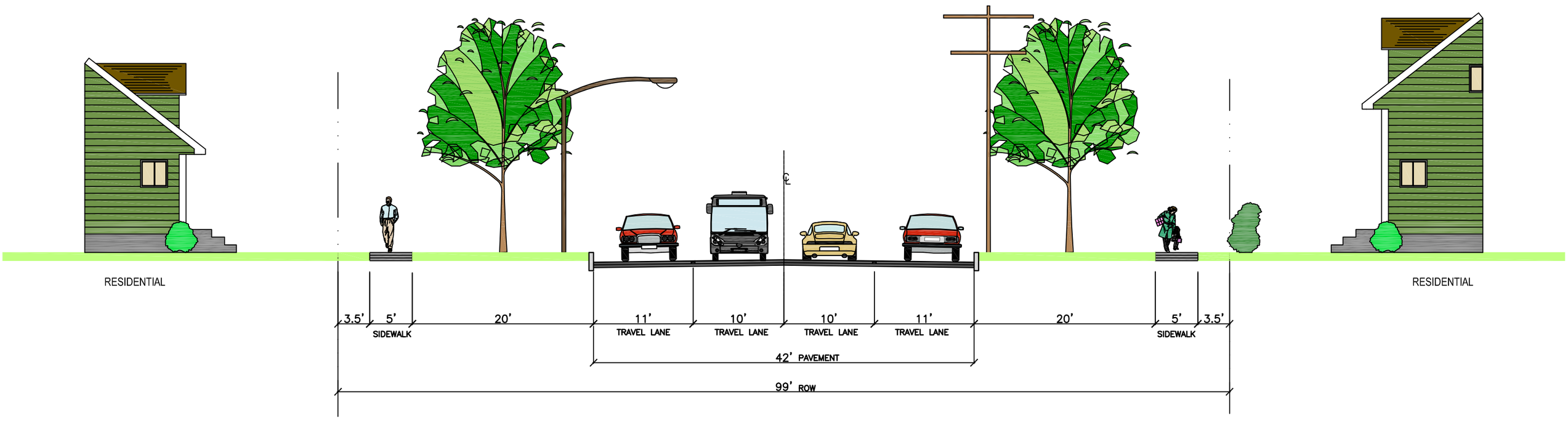
URBAN MULTIPLE USE

VIEW WESTBOUND



URBAN RESIDENTIAL

VIEW WESTBOUND



4.3.3 Pavement Conditions

According to City of Syracuse roadway pavement records, the majority of James Street consists of three inches of asphalt over a concrete base. The exception is the portion between Oswego Boulevard and North State Street, which consists of full depth asphalt. The roadway last underwent a milling and asphalt overlay in 2004.

The New York State Department of Transportation conducts annual windshield surveys to assess the condition and physical characteristics of roadways. The NYSDOT 2009 condition analysis scores the James Street pavement as "Good" and identifies some alligator and general cracking becoming evident. Wendel also conducted a pavement conditions analysis and found the pavement throughout the study area to be in generally good to excellent condition, with a few areas experiencing longitudinal cracking. There is some wheel path rutting evident within the approach lanes of James Street at Teall Avenue, Oak Street, Lodi Street, Catherine Street, North Townsend Street, and North State Street. Curbing throughout the corridor is made of granite and is in good condition.

Nearly every parcel along James Street has at least one curb cut, and several parcels have more than one curb cut. The eastern portion of the corridor is characterized mostly by narrower residential lots, meaning curb cuts are much more closely spaced. Curb cuts in the western portion of the corridor are spaced further apart. However, the western portion of the corridor consists of more intense commercial uses, so these curb cuts are often wider and generate more frequent turning movements. These curb cuts result in numerous areas where turning vehicles enter and exit the roadway. Without a designated turn lane on James Street at any of these curb cuts, turning vehicles must stop in the travel lane while waiting to make a left turn into a driveway.

4.4 Transit Facilities

Centro provides transit service throughout the City of Syracuse and Onondaga County, including several routes that operate along James Street (see Maps 6a-6c – Transit Facilities). The James Street routes are some of the most heavily used transit routes in the City. There are three main transit routes that service the corridor, all which offer several route deviations. The three main routes are the Eastwood & Sunnycrest Route (20, 120, 21 & 121), the James Street – Carrier Route (22 & 122), and the East Syracuse Shoppingtown Route (23, 123, 223, and 323). Route deviations include the following:

- Route 20, James – Lamson: This route operates along James Street between Downtown Syracuse and Eastwood, with a westbound loop on North State Street to Willow Street.
- Route 21, James – Sunnycrest: This route operates along James Street between Downtown Syracuse and Eastwood, with a westbound loop on North State Street. The route does not provide service on James Street between Sedgwick Street and Teall Avenue as the route deviates into the Sunnycrest neighborhood.
- Route 22, James- Carrier: This route operates along James Street between Downtown Syracuse and the eastern Syracuse suburban employment areas, including

Carrier Corporation, Bishop Grimes, New Venture Gear, and Pioneer Business Park. Some of the trips along this route travel as express service along I-690.

- Route 23, James – E. Syracuse: This route operates along James Street between Downtown Syracuse and East Syracuse, with a westbound loop on North State Street to Willow Street.
- Route 120, James – Midler: This route operates along James Street between Downtown Syracuse and Eastwood, with a westbound loop on North State Street to Willow Street. East of Grant Boulevard, the route deviates into the neighborhoods off Midler Avenue.
- Route 121, James – Sunnycrest Extension: This route operates along James Street between Downtown Syracuse and Eastwood, with a westbound loop on North State Street. The route does not provide service on James Street between Sedgwick Street and Teall Avenue as the route deviates into the Sunnycrest neighborhood and provides service to Shop City.
- Route 122, James – Carrier – NVG – E. Syracuse: This route operates along James Street between Downtown Syracuse and the eastern Syracuse suburban employment areas, including Carrier Corporation, Bishop Grimes, New Venture Gear, and Pioneer Business Park.
- Route 123, James – E. Syracuse/Wal-Mart: This route operates along James Street between Downtown Syracuse and Wal-Mart in East Syracuse, with a westbound loop on North State Street to Willow Street.
- Route 223, James – Shoppingtown: This route operates along James Street between Downtown Syracuse and Shoppingtown Mall in East Syracuse, with a westbound loop on North State Street to Willow Street.
- Route 323, James – Minoa: This route operates along James Street between Downtown to Minoa.

Considering all the various bus routes that operate along James Street, bus service begins daily during weekdays at 4:58 A.M. and continues until 12:18 A.M., with headways ranging from about 25 minutes to as frequent as 5-10 minutes during peak times.

The bus routes that operate along James Street carry some school students during morning and afternoon hours. The routes also serve residents of the senior housing and nursing homes along the corridor. As indicated by Centro, the busiest bus stops along James Street are at North State Street, North McBride Street, Catherine Street, Lodi Street, Highland Street, Oak Street, and a mid-block stop between Highland Street and Oak Street.

Typical sheltered Centro Bus Stop located along James Street.

To confirm dwell times[2] at the busiest bus stops, SMTC conducted a two-day study, recording the number of boardings/alightings and dwell time for each stop during both the A.M. and P.M. peak hours at the eight bus stops located along James Street between Lodi Street and Oak Street. The morning peak was defined as 7-9 A.M., and the evening peak ran from 4-6 P.M. The average dwell time for each bus to allow passengers to board/alight is approximately 20 seconds. This dwell time may exceed a minute if the wheelchair ramp is deployed and/or if any special assistance is needed, or if passengers load or unload bicycles. These longer dwell times are often experienced at bus stops that serve the numerous medical or special needs facilities along James Street, which are concentrated between North Townsend Street and Oak Street. As indicated by Centro, these routes are not heavily traveled by students of Syracuse University, but do handle some riders destined for Bryant & Stratton, which is within the study area, and Onondaga Community College, which is outside of the study area, but can be reached through a transfer downtown.

Major bus stops along James Street include a shelter, seating, and routing information; however, most bus stops consist of only a signed bus stop on a pole. There are no shelters, seating, or trash receptacles at the majority of stops. There is a bus pull-off lane along westbound James Street in front of Lincoln Middle School.

Residents and riders stated that transit service along the James Street corridor is adequate for their needs.

[2] Dwell time is the length of time needed for the bus to stop and allow passengers to get on or off at a stop.

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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 6A

TRANSIT FACILITIES

N
W E
S

LEGEND

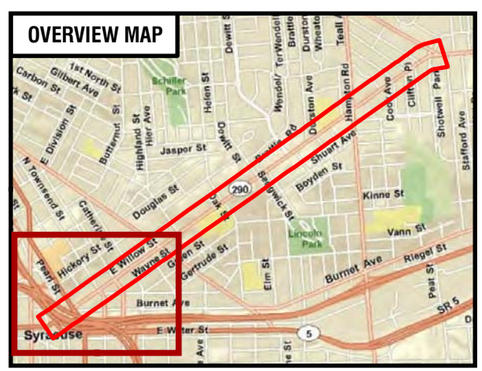
- Study Area
- Interstate

Bus Stop

- No Shelter
- Shelter
- CENTRO Bus Route 20
- CENTRO Bus Route 22
- CENTRO Bus Route 23

0 50 100 200 Feet

OVERVIEW MAP



WENDEL DUCHSCHERER
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Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 6B

TRANSIT FACILITIES

N
W E
S

LEGEND

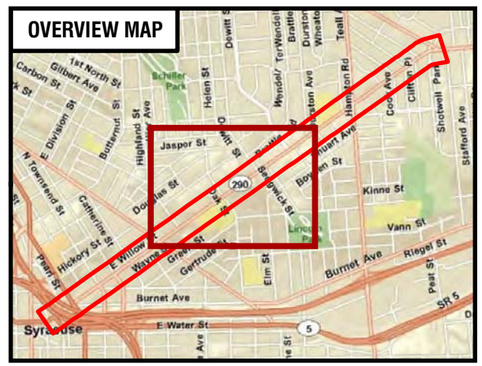
- Study Area
- Interstate

Bus Stop

- No Shelter
- Shelter
- CENTRO Bus Route 20
- CENTRO Bus Route 22
- CENTRO Bus Route 23

0 50 100 200
Feet

OVERVIEW MAP



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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 6C

TRANSIT FACILITIES

N
W E
S

LEGEND

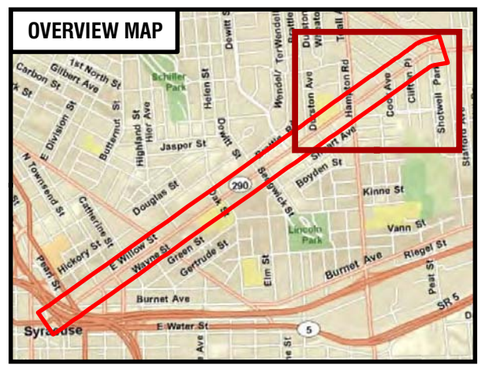
- Study Area
- Interstate

Bus Stop

- No Shelter
- Shelter
- CENTRO Bus Route 20
- CENTRO Bus Route 22
- CENTRO Bus Route 23

0 50 100 200
Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

4.5 Pedestrian Amenities

James Street has sidewalks on both sides of the street throughout the study area. The sidewalks in the western portion of the corridor, closer to downtown, are wider and most have been upgraded recently. The residential areas typically have narrower and older sidewalks. The majority of the sidewalk widths are ADA compliant, with a minimum width of 5 feet. The existing sidewalks along the corridor that are less than 5 feet in width are ADA compliant because they contain driveways spaced no more than 200 feet apart that can act as a landing. Sidewalk conditions are depicted in Maps 7a-7d – Pedestrian/Landscape Amenities. General sidewalk widths are indicated in Table 4.

Table 4: James Street Corridor Sidewalk Widths

James Street Corridor Section	Sidewalk Width
Oswego Boulevard to N. State Street	17-18 feet
N. State Street to N. Townsend Street	8 feet along north side; 8-12 feet along south side.
N. Townsend Street to Lodi Street	6-8 feet along north side; 8 feet along south side.
Lodi Street to Oak Street	5½-6 feet along north side; 6-8 feet along south side.
Oak Street to DeWitt Street/Sedgwick Street	6 feet along north side; 5½-6 feet along south side.
DeWitt Street/Sedgwick Street to Teall Avenue	5 feet along north side; 5-6 feet along south side.
Teall Avenue to Shotwell Park/Grant Boulevard	4½-5 feet

For the most part, sidewalks throughout the study area are constructed of concrete, with very few areas consisting of asphalt or pavers. Sidewalks were evaluated and scored based upon their conformance with FHWA guidelines for sidewalk corridors, which take into account sidewalk width, buffer zone, obstructing objects, grade and cross-slope, surface, and ADA compliance. Sidewalks were scored as good, fair, or poor. The majority of the sidewalks along the corridor were scored as good or fair.

Generally, there is sufficient width, good vertical clearance, little cracking or chipping, minimal horizontal obstruction, and limited uneven surfaces (see Maps 7a-7d – Pedestrian/ Landscape Amenities). Sidewalks that are in good condition are identified in green and those in fair condition are shown in orange. There were a few locations identified where poor sidewalk conditions are present and are indicated on the sidewalk conditions map in red. Sidewalks identified as having poor conditions typically have uneven and varying surface types, abundant cracking and/or chipping, or obstructions from nearby vegetation or utility infrastructure. Sidewalks located under the I-81 viaduct are of poor condition, mainly due to settling, cracking, and collection of debris. Many of the sidewalks west of Oak Street have been reconstructed and widened to accommodate higher pedestrian volumes. Sidewalks along the eastern portion of the corridor are visibly older and poor conditions are more prevalent. Pedestrian signals are located at signalized intersections and ramps are located at every intersection, enhancing the accessibility of the sidewalks. The existence of sidewalks generally results in very comfortable walking conditions.

In addition to the identified sidewalk conditions, there is a gradual vertical slope that can make for strenuous walking and biking conditions that extends from about Catherine Street to Sedgwick Street, cresting near Oak Street. This slope is more substantial along the north side where the sidewalk is perched above the road grade in places, creating not only vertical slope issues but a considerable cross-slope that drops off from the edge of the sidewalk to the pavement.

Sidewalk conditions along James Street showing the slope (left) and obstructions (right) that are met by pedestrians.

Sidewalk approaches at all intersections consist of ramps that taper from the sidewalk grade to pavement grade; however, only a few have been upgraded to include slip-resistant surfaces and the full width required to be ADA compliant. Many residents have indicated feeling unsafe about crossing James Street. Most intersections allow a vehicle to make a right-on-red, posing a conflict for pedestrians crossing the street. Additionally, pavement markings and stop bars are worn and don't clearly delineate the pedestrian crosswalk.

In general, crosswalk markings and stop bars are in poor condition, and in some instances, are not visible at all. All signalized intersections contain pedestrian signals for all identified crosswalks, but none have audible detections. Intersections where vehicles are permitted to make right turns on red pose safety concerns for pedestrians.

The following picture portrays the condition of pavement markings that are typical of many James Street intersections, with unclear pedestrian markings.

Example of existing pedestrian crosswalk pavement markings

4.6 Bicycle Facilities

There are no designated bicycle facilities along James Street. Bicyclists either share the narrow outside travel lane with vehicular traffic or use the sidewalk, neither of which is an ideal situation. Very low bicycle volumes were observed along James Street during both the A.M. and P.M. peak hours; however, field observations indicated much higher traffic volumes during the midday, including several bicyclists riding in groups around lunchtime. Additionally, several bicyclists were observed traveling on the sidewalk, which creates conflicts with pedestrians. These observations seem to indicate that there is a desire to travel the corridor by bicycle, but people do not feel comfortable doing so during times of high vehicle usage. There is also evidence that many bicyclists do not feel comfortable using the outside travel lane to bike.

Poor sidewalk conditions under the I-81 viaduct.

4.7 Landscapes

One of the greatest assets of the James Street corridor is the mature tree canopy that drapes that majority of the corridor. Very few urban corridors are blessed with such an intact tree canopy and such a wide greenspace between the pavement and sidewalk. This creates a very comfortable environment for pedestrian use and provides an abundant buffer between the roadway and adjacent buildings. This tree canopy also helps conceal the overhead utility infrastructure and enhances the aesthetic appearance of the corridor.

Typical tree canopy existing along James Street.

The width of the James Street right-of-way is a consistent 99 feet throughout the study area, allowing for an abundant 15-to-22 foot landscape strip between the pavement edge and sidewalk. This landscape strip generally consists of a grass groundcover, except for driveway locations, and is planted with a generous tree canopy consisting of a mix of Honey Locust, Norway Maple, Linden, Japanese Pagodatree, Ginkgo, Ash, Red Oak, Red Maple, and Silver Maple. Tree conditions are indicated on Maps 7a-7d – Pedestrian/Landscape Amenities.

There are a few noticeable breaks in the tree canopy, mainly closer to Downtown, near the intersections of Oak Street, DeWitt Street, Sedgwick Street, Teall Avenue, Cook Avenue, Hastings Place, and Shotwell Park, and near Lincoln Middle School. There is a long stretch of the corridor between about Oswego Boulevard and North State Street that lies beneath the I-81 viaduct. This viaduct breaks up the continuity between Downtown Syracuse and the remainder of the James Street Corridor and creates a rather uncomfortable walking environment.

The portion of the roadway beneath the viaduct will require special consideration to improve its atmosphere and appearance.

The I-81 viaduct obstructs the viewshed of downtown from the corridor.

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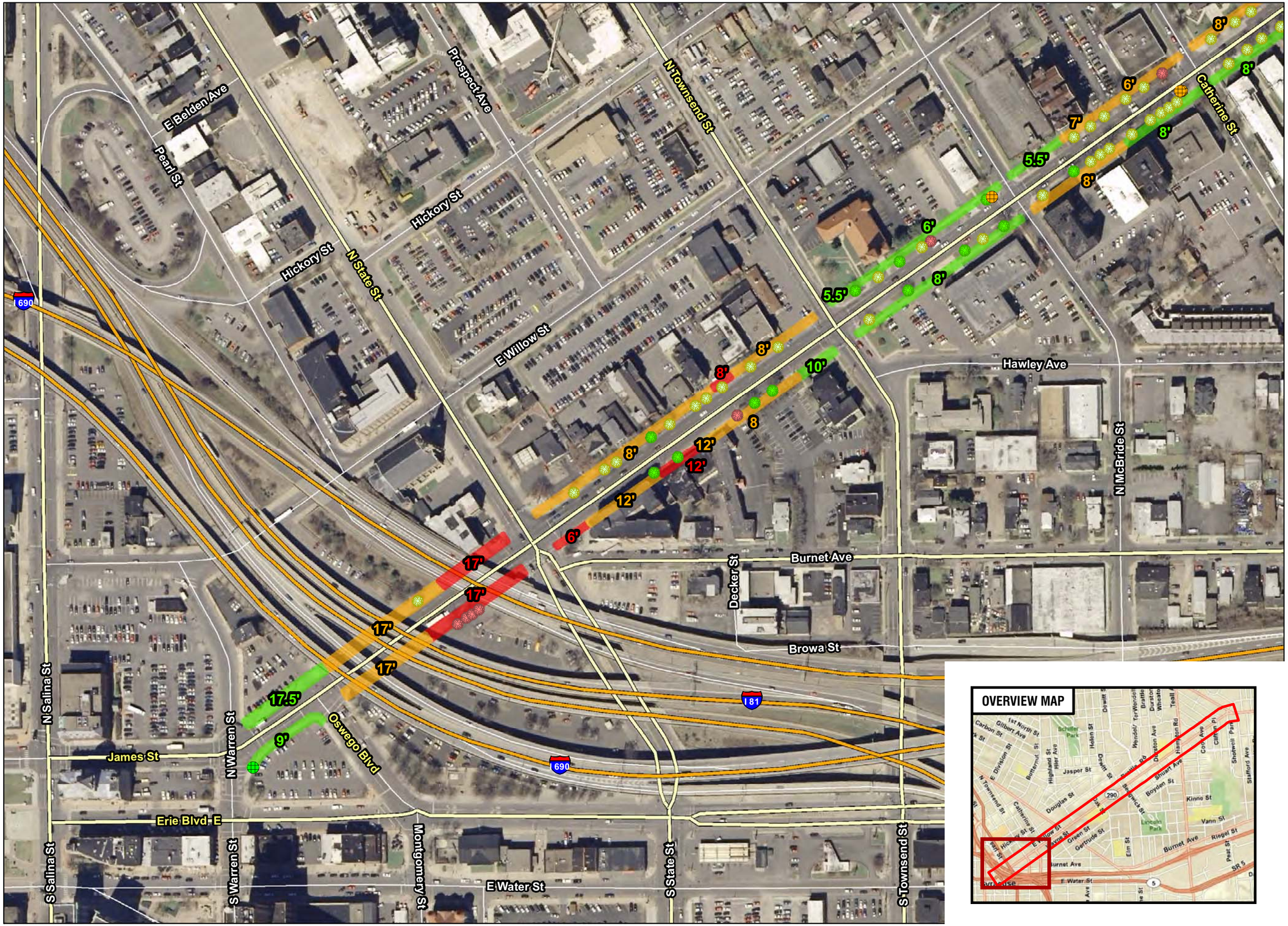
JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 7A

PEDESTRIAN/ LANDSCAPE AMENITIES



LEGEND

- Study Area
- Interstate
- Major Roadway

Street Furnishing

- Garbage Receptacle
- Mailbox
- Newspaper Rack

Tree Condition

- Unknown
- Dead
- Poor
- Fair
- Good

Sidewalk Condition & Width

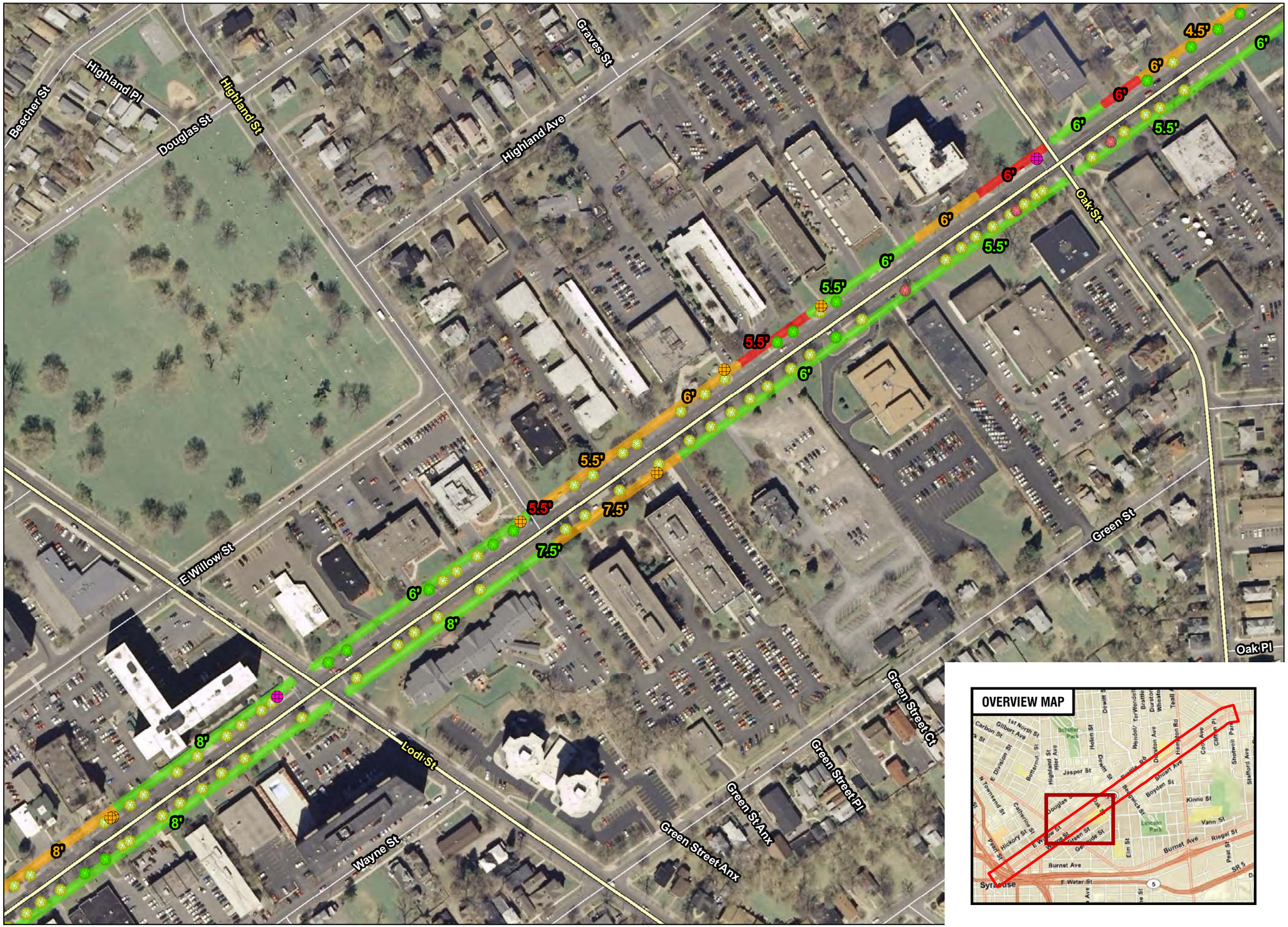
- Good
- Fair
- Poor

0 50 100 200 Feet

WENDEL DUCHSCHERER ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery



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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 7B

PEDESTRIAN/ LANDSCAPE AMENITIES

N
W E
S

LEGEND

- Study Area
- Interstate
- Major Roadway

Street Furnishing

- Garbage Receptacle
- Mailbox
- Newspaper Rack

Tree Condition

- Unknown
- Dead
- Poor
- Fair
- Good

Sidewalk Condition & Width

- Good
- Fair
- Poor

0 50 100 200
Feet

OVERVIEW MAP

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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery

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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 7C

PEDESTRIAN/ LANDSCAPE AMENITIES

N
W E
S

LEGEND

- Study Area
- Interstate
- Major Roadway

Street Furnishing

- Garbage Receptacle
- Mailbox
- Newspaper Rack

Tree Condition

- Unknown
- Dead
- Poor
- Fair
- Good

Sidewalk Condition & Width

- Good
- Fair
- Poor

0 50 100 200
Feet

OVERVIEW MAP

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 7D

PEDESTRIAN/ LANDSCAPE AMENITIES

N
W E
S

LEGEND

- Study Area
- Interstate
- Major Roadway

Street Furnishing

- Garbage Receptacle
- Mailbox
- Newspaper Rack

Tree Condition

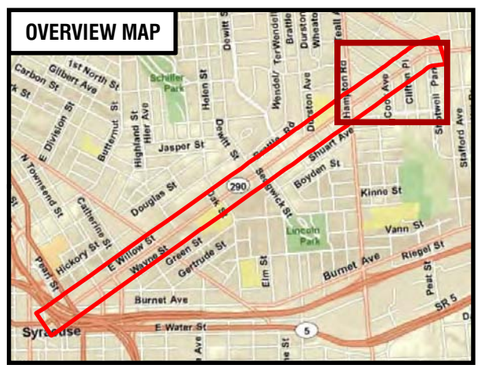
- Unknown
- Dead
- Poor
- Fair
- Good

Sidewalk Condition & Width

- Good
- Fair
- Poor

0 50 100 200 Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, 2006 1ft. Digital Orthoimagery

4.8 Utility Infrastructure

According to GIS data obtained from the City of Syracuse, municipal water mains run along the entire length of the north side of James Street and also run along the south side of the roadway along much of the corridor between the pavement and sidewalk. Sewer infrastructure consists of both combined sanitary/storm sewers and separated systems running beneath the James Street pavement. Drainage grates along both sides of James Street collect stormwater (see Maps 8a-8d – Utility Infrastructure).

View of typical overhead utility lines found along the eastern portion of the James Street corridor.

James Street is lit by stainless steel overhead cobra lights located on both sides of the street between Oswego Boulevard and Oak Street and located along the south side between Oak Street and Grant Boulevard. Wooden utility poles located between the pavement and sidewalk carry overhead utility lines along the north side of James Street between DeWitt Street and Grant Boulevard. Utility lines frequently cross over James Street to provide service to residences and businesses on the south side of James Street. East of DeWitt Street, utility lines are underground with grates at grade level to access underground facilities. Occasionally these grates encroach upon the sidewalk. There are also above-ground junction boxes located between the pavement and sidewalk. Traffic signals along James Street are mounted upon stainless steel single-arm masts, with the exception of the traffic signals at Oswego Boulevard and at Shotwell Park, which are hung from span wire.

4.9 Safety

The SMTC 2007 Long Range Transportation Plan (LRTP) identified bicycle and/or pedestrian collisions that occurred throughout the MPA between 1987 and 2000. Several major intersections along James Street were identified as experiencing the highest number of bicycle and/or pedestrian collisions during this time period. These include North State Street, North Townsend Street, Catherine Street, Lodi Street, Sedgwick Drive, and Vine

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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 8A

UTILITY INFRASTRUCTURE

N
W E
S

LEGEND

- Interstate
- Water Main
- Sewer Main
- Hydrant

Street Lighting

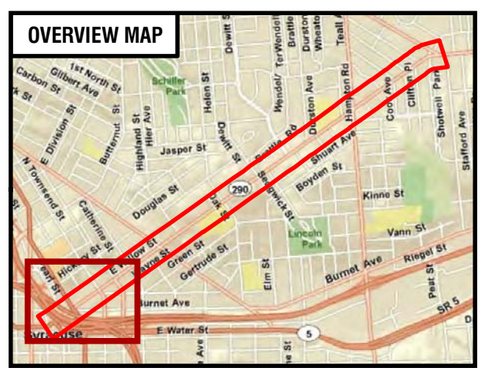
- Overhead Cobra
- Overhead Decorative
- Pole Mounted

Utility Pole

- Combined Utility/Light Pole
- Utility Pole

0 50 100 200
Feet

OVERVIEW MAP



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WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 8B

UTILITY INFRASTRUCTURE

N
W E
S

LEGEND

- Interstate
- Water Main
- Sewer Main
- Hydrant

Street Lighting

- Overhead Cobra
- Overhead Decorative
- Pole Mounted

Utility Pole

- Combined Utility/Light Pole
- Utility Pole

0 50 100 200
Feet

OVERVIEW MAP

WENDEL DUCHSCHERER
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Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

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JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 8C

UTILITY INFRASTRUCTURE

N
W E
S

LEGEND

- Interstate
- Water Main
- Sewer Main
- Hydrant

Street Lighting

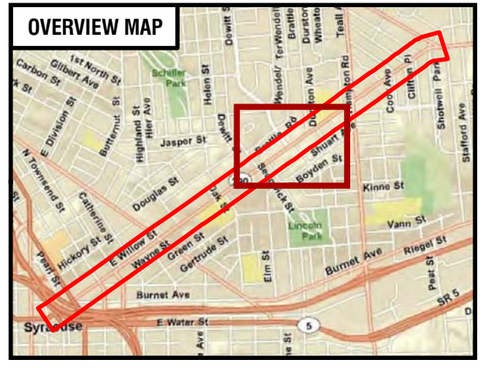
- Overhead Cobra
- Overhead Decorative
- Pole Mounted

Utility Pole

- Combined Utility/Light Pole
- Utility Pole

0 50 100 200 Feet

OVERVIEW MAP



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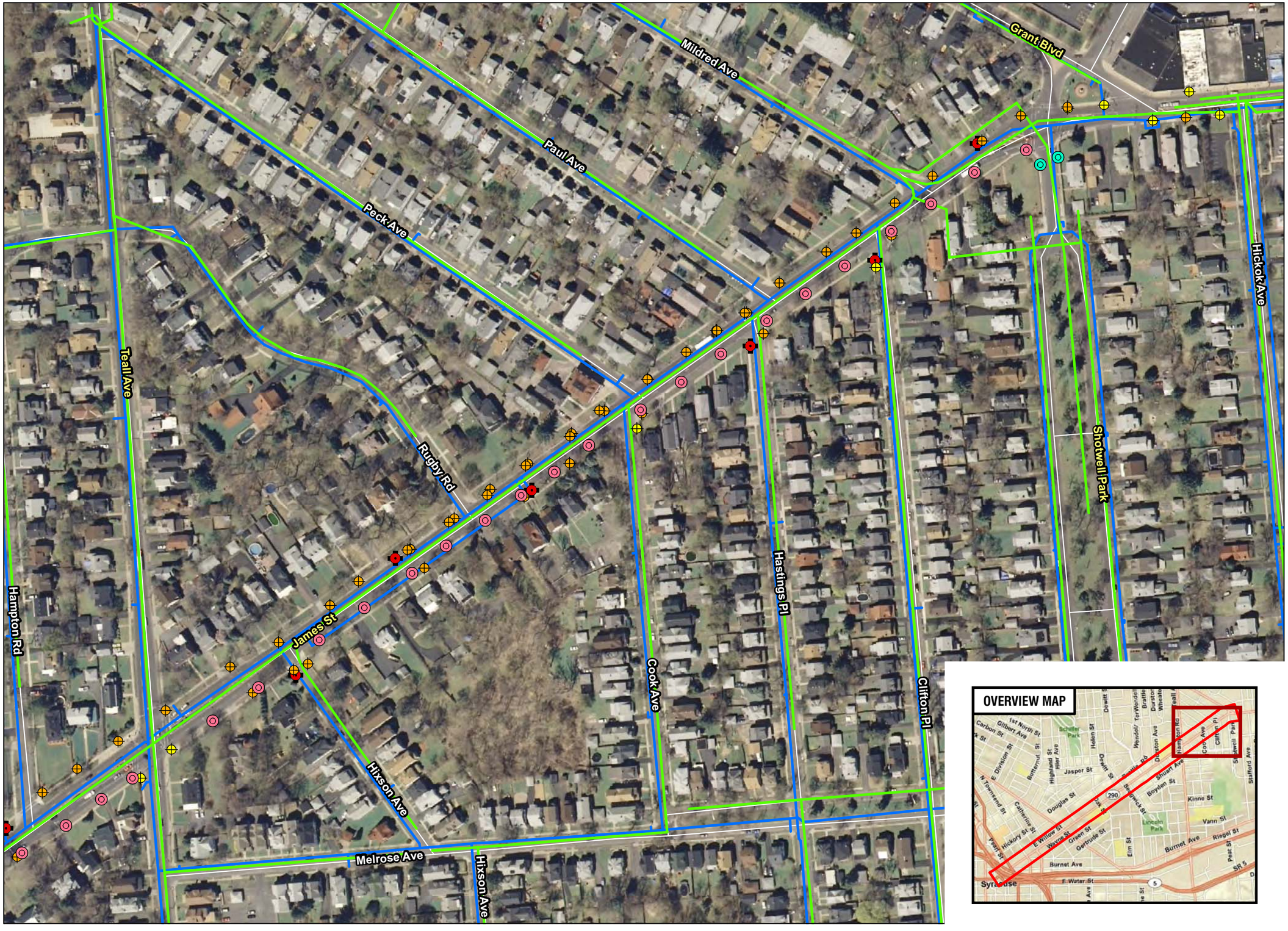


SMTC

JAMES STREET ROAD DIET

CITY OF SYRACUSE
ONONDAGA COUNTY - NEW YORK

MAP 8D

UTILITY INFRASTRUCTURE

N
W E
S

LEGEND

- Interstate
- Water Main
- Sewer Main
- Hydrant

Street Lighting

- Overhead Cobra
- Overhead Decorative
- Pole Mounted

Utility Pole

- Combined Utility/Light Pole
- Utility Pole

0 50 100 200
Feet

OVERVIEW MAP

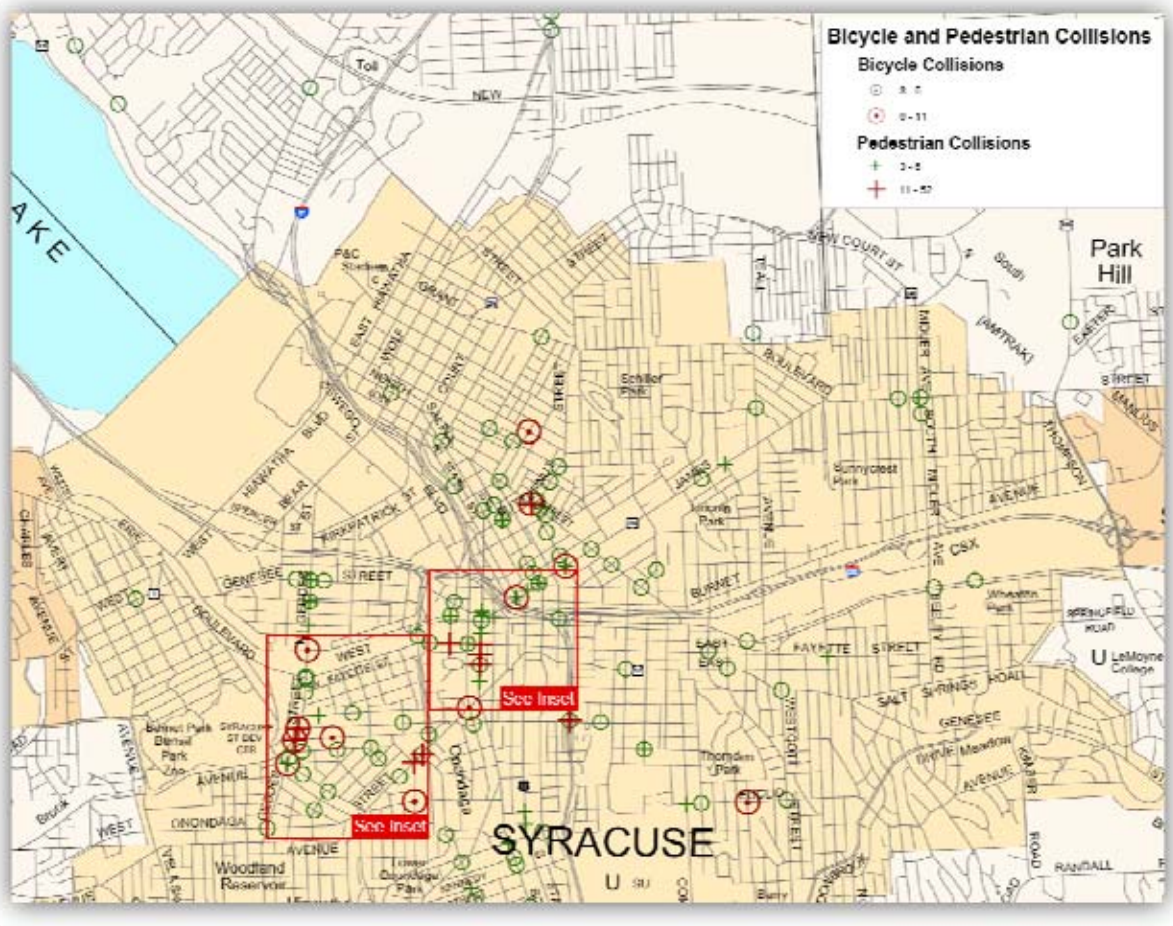
WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

WD Project # 447901
Map Created: July, 2010

Data Sources: NYS GIS Clearinghouse, CUGIR, SMTC, 2006 1ft. Digital Orthoimagery

Street. The 2007 LRTP further identified the intersection of James Street and North State Street as one of the highest bicycle and pedestrian accident locations in Onondaga County between 1998 and 2000 (Table 5-7 of the LRTP). The 2007 LRTP did not identify any high vehicle on vehicle crash locations throughout the corridor.

The 2011 LRTP examined the ten highest motor vehicle collision locations in the MPA by jurisdiction (NYS, Onondaga County, City of Syracuse) over a three-year period (June 2006 – June 2009). This data was obtained from the NYSDOT Accident Location Information System (ALIS). The intersection of James Street and Lodi Street was one of the top ten accident locations within the City, with 42 total accidents between 2006 and 2009.



High Bicycle and Pedestrian Collision Locations – SMTC Long Range Transportation Plan, Map 24.

4.9.1 Vehicle Safety

Statistics obtained from the City of Syracuse Police Department indicate that since 2005, there were 629 vehicle-on-vehicle crashes, 28 crashes that involved a vehicle and pedestrian, and 18 crashes that involved a vehicle and bicycle. Vehicle-on-vehicles crashes are further characterized in Table 5.

Table 5: James Street Corridor Vehicle-on-Vehicle Crashes by Type

Vehicle-on-Vehicle Crashes by Type since 2005	% of total vehicle-on-vehicle crashes
Rear End	32.1%
Right Angle	16.7%
Left Turn (Against Other Car)	12.7%
Overtaking	11.3%
Other	10.0%
Unknown	5.2%
Left Turn (With Other Car)	4.1%
Sideswipe	3.0%
Right Turn (With Other Car)	2.7%
Right Turn (Against Other Car)	1.7%
Head On	0.5%

4.9.2 Vehicle Speeds

The City of Syracuse Police Department has been concerned over speeding vehicles along the corridor, especially within the school zone. Speed data obtained from the Police Department for James Street indicates that 84.5% of vehicles that travel James Street are traveling over the speed limit, with 29% of vehicles traveling at least 10 mph over the speed limit.

4.9.3 Other Safety Concerns

Numerous people indicated that they felt uncomfortable crossing James Street because of the poor conditions of crosswalk markings, lack of safe mid-block crossings, speeding or weaving vehicles, or vehicles making a right-on-red turn.

There are several catch basins and other manhole covers along the corridor that aren't at-grade with the pavement. Several people indicated that the small street signs are difficult to distinguish. Several commuters indicated that in winter, the roadway can become slick, making it difficult to traverse the grade. In addition, travel lanes can be as narrow as 10 feet in certain areas. While this is generally recognized as a good traffic calming technique, as snow is plowed from the streets and gathers at the curb, the already narrow outside travel lane becomes even narrower. Additionally, residents voiced a concern about sidewalks not being cleared of snow during the winter, making the corridor difficult to travel by foot or bicycle.

4.10 Traffic Operations

4.10.1 Overview of Analysis Methodology

The signalized and unsignalized intersections of the James Street corridor were analyzed using Synchro, Version 7 software. Synchro is based on methodologies presented in the 2000 Highway Capacity Manual that describe the operation of both signalized and unsignalized intersections. Although the 2000 Highway Capacity Manual does take into account the effects of adjacent traffic signals on overall operations,

Synchro provides a more refined process to account for signal actuation, vehicle progression between signals, and impacts of traffic queues. Additionally, Synchro provides an interface to Simtraffic, which can be used to view a real-time simulation of traffic operations in the study area. This program is an industry accepted standard and was therefore used to accurately determine the Levels of Service (LOS) for traffic traveling through the study area intersections.

The LOS for both signalized and unsignalized intersections are defined in terms of control delay. Control delay is a measure of the total travel time lost and includes slowing delay, stopped delay, queue move up time, and start up lost time. LOS thresholds are defined as average delay in seconds per vehicle over a fifteen-minute analysis period and range from LOS "A" to "F" for both signalized and unsignalized intersections. LOS "A" represents freely flowing traffic with little or no delay. LOS "F" represents highly congested traffic with forced (breakdown) flow and substantial delays. Table 6 provides a summary of the LOS thresholds as defined in the 2000 Highway Capacity Manual.

Table 6: Level of Service Thresholds

Level of Service Thresholds	Signalized Intersections (seconds of delay)	Unsignalized Intersections (seconds of delay)
A – Little or no delay	Less than 10.0 seconds	Less than 10.0 seconds
B – Minor, short delays	10.1 to 20.0 seconds	10.1 to 15.0 seconds
C – Average delays	20.1 to 35.0 seconds	15.1 to 25.0 seconds
D – Long but acceptable delays	35.1 to 55.0 seconds	25.1 to 35.0 seconds
E – Long, near unacceptable delays	55.1 to 80.0 seconds	35.1 to 50.0 seconds
F – Unacceptable delays	More than 80.0 seconds	More than 50.0 seconds

An overall intersection LOS "D" or better is generally considered acceptable at a signalized intersection. A signalized intersection LOS below "D" indicates that the average control delay per vehicle will exceed 55.0 seconds.

An overall intersection LOS "E" or better is considered acceptable at an unsignalized intersection with a LOS below "E" indicating that the delay per vehicles will exceed 50.0 seconds. The acceptable LOS thresholds are lower for an unsignalized intersection because drivers generally expect longer delays at signalized intersections versus unsignalized ones.

4.10.2 Traffic Volumes

Vehicular movement counts and pedestrian and bicycle movement counts for both the morning peak hours (7:00-9:00 A.M.) and evening peak hours (4:00-6:00 P.M.) were collected along the James Street corridor at signalized intersections to determine the 2009 existing conditions. Although the peak hour varied slightly between intersections,

the morning peak hour is generally 7:45-8:45 A.M. and the evening peak hour is generally 4:30-5:30 P.M. Under the 2009 Existing Conditions, James Street experiences 300-700 vehicles in either direction during both the morning peak hour and evening peak hour (see Figure 1 – 2009 Existing Traffic Volumes Morning Peak Hour and Figure 2 – 2009 Existing Traffic Volumes Evening Peak Hour).

Pedestrian volumes are fairly evenly distributed along the corridor with signalized intersections generally experiencing between 10 and 30 pedestrian crossings during both the morning and evening peak hour (see Figure 3 – 2009 Existing Pedestrian Volumes Morning (Evening) Peak Hour).

Bicycle volumes are generally low along the corridor during the morning and evening peak hour, with most signalized intersections experiencing fewer than five bicycles during both the morning and evening peak hour (see Figure 4 – 2009 Existing Bicyclist Volumes Morning (Evening) Peak Hour). Since the peak hour for bicycle trips is likely not the same peak hour as vehicle trips, the number of bicycle trips may have been undercounted. It was observed during site visits that bicycle trips increased throughout the late morning and afternoon when vehicular trips generally decreased. This is likely due to the fact that on-street bicycle facilities do not exist and even the most experienced bicyclists do not feel comfortable riding during times of peak vehicular traffic. Figures 5 – 8 provide analysis for anticipated conditions for 2030.

Attendees at the public meeting indicated that poor traffic light coordination along the corridor creates congestion and impacts travel times. Several participants at the public meeting admitted speeding to avoid red lights.

4.10.3 2009 Capacity Analysis Results

Traffic volumes were input into Synchro, and 2009 existing LOS was determined for each of the study area intersections. As shown in Table 7, all intersections except James Street/Shotwell Park/Grant Boulvard operate at a LOS of C or better under existing conditions, with most operating at LOS A or B.

The James Street intersection with Shotwell Park/Grant Boulevard currently operates at a LOS F during both the morning and evening peak hours. In general, longer queue lengths are experienced along James Street during the evening peak hour. The queue summary is shown in Table 8.

Table 7: Level of Service Summary – Null Condition

Intersection	2009 Existing Condition	
	Morning Peak Hour	Evening Peak Hour
James Street @ Oswego Road	**A(8)**	**D(38)**
EB Left/Through/Right	A(6)	B(14)
WB Left/Through/Right	A(5)	C(35)
NB Left	C(23)	F(126)
NB Left/Through/Right	C(22)	D(54)
SB Left/Through/Right	A(0)	C(27)
James Street @ North State Street	**B(15)**	**C(23)**
EB Left	C(24)	C(24)
EB Through/Right	C(21)	C(25)
WB Left/Through	B(13)	C(26)
WB Right	A(4)	B(11)
NB Left	C(21)	B(19)
NB Through/Right	B(18)	C(27)
SB Left	B(12)	B(13)
SB Through/Right	B(12)	A(9)
James Street @ North Townsend Street	**A(10)**	**B(14)**
EB Left/Through/Right	A(4)	A(6)
WB Left/Through/Right	A(6)	A(6)
NB Left	C(21)	D(36)
NB Through	B(19)	C(24)
NB Right	A(5)	A(5)
SB Left	B(16)	B(20)
SB Through/Right	B(17)	C(21)
James Street @ North McBride Street	**A(6)**	**A(7)**
EB Left/Through/Right	A(2)	A(3)
WB Left/Through/Right	A(8)	A(5)
NB Left/Through/Right	B(20)	C(24)
SB Left/Through/Right	B(18)	C(26)
James Street @ Catherine Street	**A(8)**	**B(18)**
EB Left/Through/Right	A(1)	A(3)
WB Left/Through/Right	A(6)	A(7)
NB Left/Through/Right	C(22)	E(59)
SB Left/Through/Right	C(22)	C(24)
James Street @ Lodi Street	**B(16)**	**B(20)**
EB Left/Through/Right	B(11)	B(16)
WB Left/Through/Right	A(10)	C(22)
NB Left/Through/Right	C(27)	C(23)
SB Left/Through/Right	C(28)	B(18)
James Street @ Oak Street	**B(11)**	**B(14)**
EB Left/Through/Right	A(7)	B(11)
WB Left/Through/Right	A(4)	A(9)
NB Left/Through/Right	C(27)	C(31)
SB Left/Through/Right	B(15)	C(26)

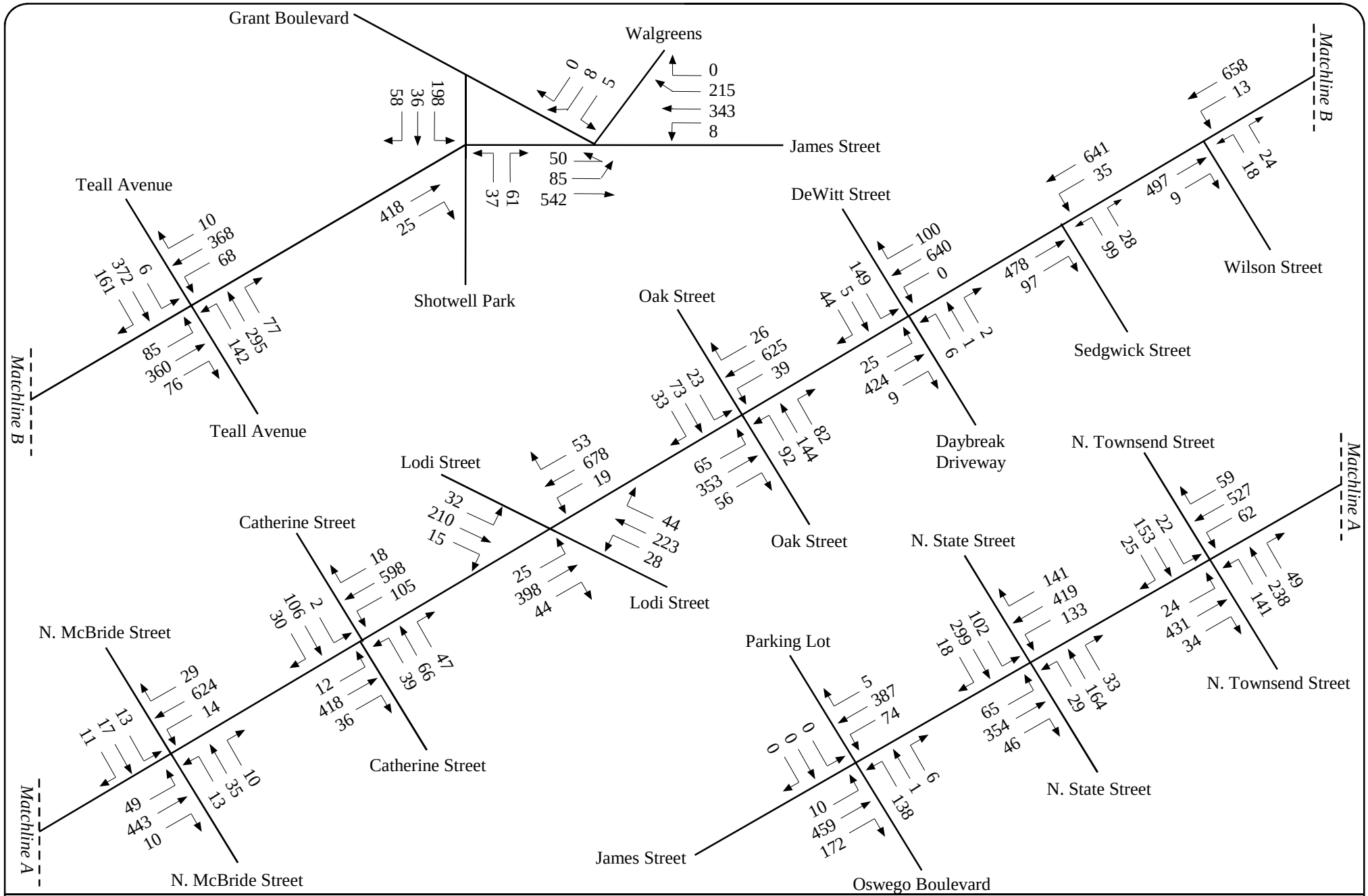
Intersection	2009 Existing Condition	
	Morning Peak Hour	Evening Peak Hour
James Street @ DeWitt Street	**A(9)**	**A(8)**
EB Left/Through/Right	A(10)	A(4)
WB Left/Through/Right	A(4)	A(7)
NB Left/Through/Right	B(14)	B(16)
SB Left/Through/Right	C(26)	C(29)
James Street @ Segwick Street	**A(8)**	**A(8)**
EB Through/Right	A(3)	A(9)
WB Left/Through	A(10)	A(6)
NB Left/Right	B(16)	B(17)
James Street @ Wilson Street	**A(4)**	**A(8)**
EB Through/Right	A(5)	B(11)
WB Left/Through	A(4)	A(3)
NB Left/Right	B(13)	B(15)
James Street @ Teall Avenue	**B(20)**	**C(28)**
EB Left	C(32)	D(41)
EB Through/Right	C(24)	C(30)
WB Left	C(32)	D(41)
WB Through/Right	C(24)	C(29)
NB Left/Through/Right	B(17)	C(23)
SB Left/Through/Right	B(14)	B(20)
James Street @ Shotwell Park / Grant Blvd.	**F(130)**	**F(140)**
EB Left	A(7)	A(7)
EB Through/Right	A(9)	A(9)
WB Left/Through	D(42)	D(37)
WB Right	D(37)	D(50)
NB Left/Right	B(18)	B(16)
SB Left/Through/Right (Grant)	F(449)	F(527)
SB Left/Right (Walgreens)	D(37)	D(36)

A(9) – Level of Service (Average Delay per Vehicle in Seconds)

Table 8: Queue Summary – Null Condition

Intersection	Available Turn Bay Storage	2009 Existing Condition	
		Morning Peak Hour	Evening Peak Hour
James Street @ Oswego Road			
EB Left/Through/Right	-	61	102
WB Left/Through/Right	-	27	137
NB Left	-	46	149
NB Left/Through/Right	-	44	128
SB Left/Through/Right	-	0	17
James Street @ North State Street			
EB Left	150	46	45
EB Through/Right	-	92	122
WB Left/Through	-	108	122
WB Right	150	32	71
NB Left	120	22	22
NB Through/Right	-	41	185
SB Left	120	38	37
SB Through/Right	-	48	26
James Street @ North Townsend Street			
EB Left/Through/Right	-	8	35
WB Left/Through/Right	-	6	36
NB Left	105	71	146
NB Through	-	102	159
NB Right	-	14	20
SB Left	150	15	24
SB Through/Right	-	74	106
James Street @ North McBride Street			
EB Left/Through/Right	-	14	28
WB Left/Through/Right	-	118	48
NB Left/Through/Right	-	33	47
SB Left/Through/Right	-	25	91
James Street @ Catherine Street			
EB Left/Through/Right	-	7	26
WB Left/Through/Right	-	63	59
NB Left/Through/Right	-	71	235
SB Left/Through/Right	-	67	76
James Street @ Lodi Street			
EB Left/Through/Right	-	42	178
WB Left/Through/Right	-	147	150
NB Left/Through/Right	-	68	112
SB Left/Through/Right	-	63	48
James Street @ Oak Street			
EB Left/Through/Right	-	47	152
WB Left/Through/Right	-	10	107
NB Left/Through/Right	-	122	88
SB Left/Through/Right	-	45	91

Intersection	Available Turn Bay Storage	2009 Existing Condition	
		Morning Peak Hour	Evening Peak Hour
James Street @ DeWitt Street			
EB Left/Through/Right	-	74	16
WB Left/Through/Right	-	18	71
NB Left/Through/Right	-	8	15
SB Left/Through/Right	-	80	86
James Street @ Segwick Street			
EB Through/Right	-	14	82
WB Left/Through	-	134	36
NB Left/Right	-	50	46
James Street @ Wilson Street			
EB Through/Right	-	67	162
WB Left/Through	-	73	54
NB Left/Right	-	16	16
James Street @ Teall Avenue			
EB Left	160	67	165
EB Through/Right	-	119	183
WB Left	125	57	130
WB Through/Right	-	108	110
NB Left/Through/Right	-	118	168
SB Left/Through/Right	-	105	143
James Street @ Shotwell Park / Grant Blvd.			
EB Left	100	39	42
EB Through/Right	-	117	128
WB Left/Through	-	221	223
WB Right	150	140	239
NB Left/Right	-	44	44
SB Left/Through/Right (Grant)	-	275	381
SB Left/Right (Walgreens)	-	17	54



James Street Diet

2009 Existing Traffic Volumes
Morning Peak Hour

Figure 1

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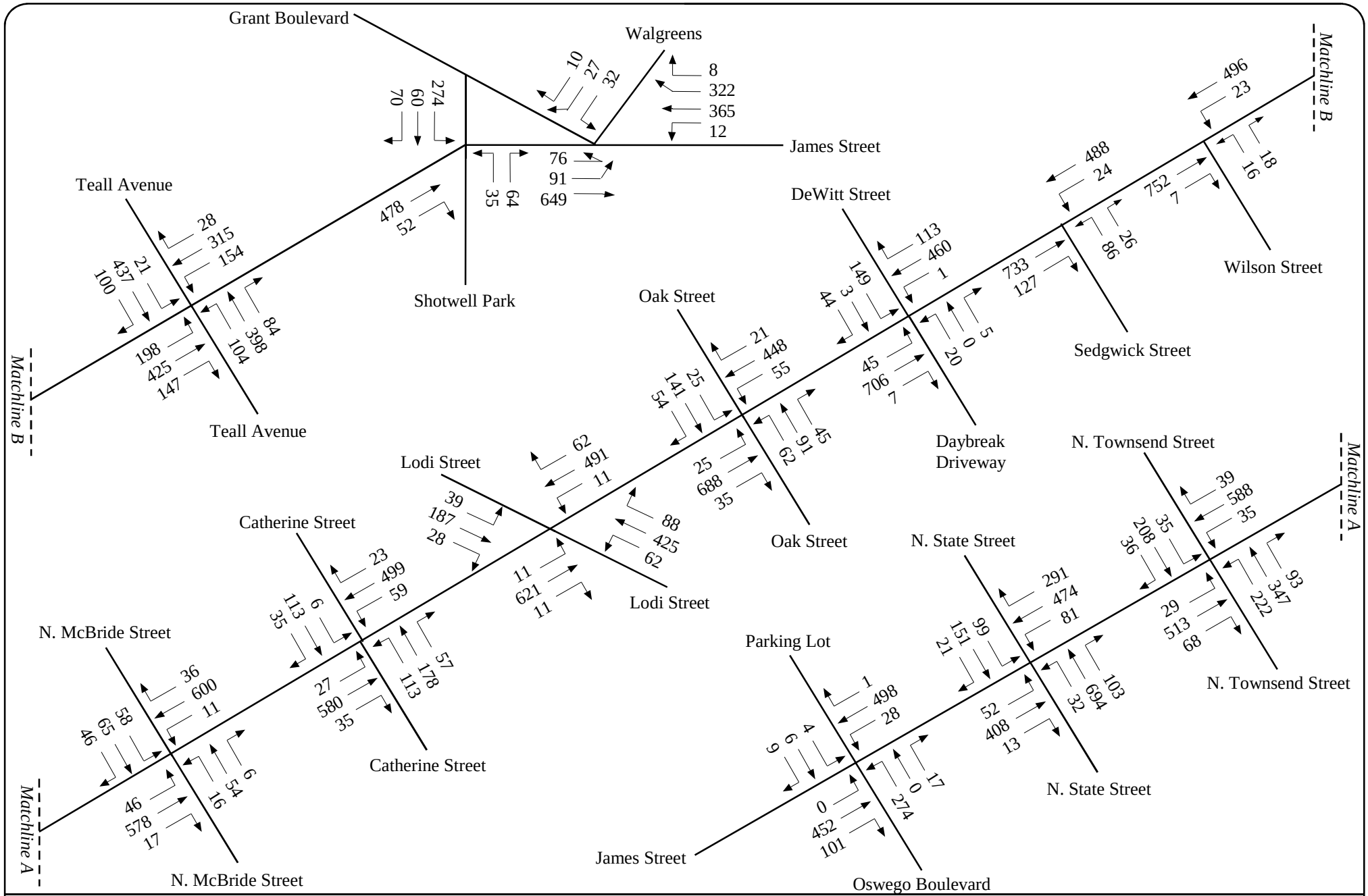

James Street Diet

2009 Existing Traffic Volumes
Evening Peak Hour

Figure 2

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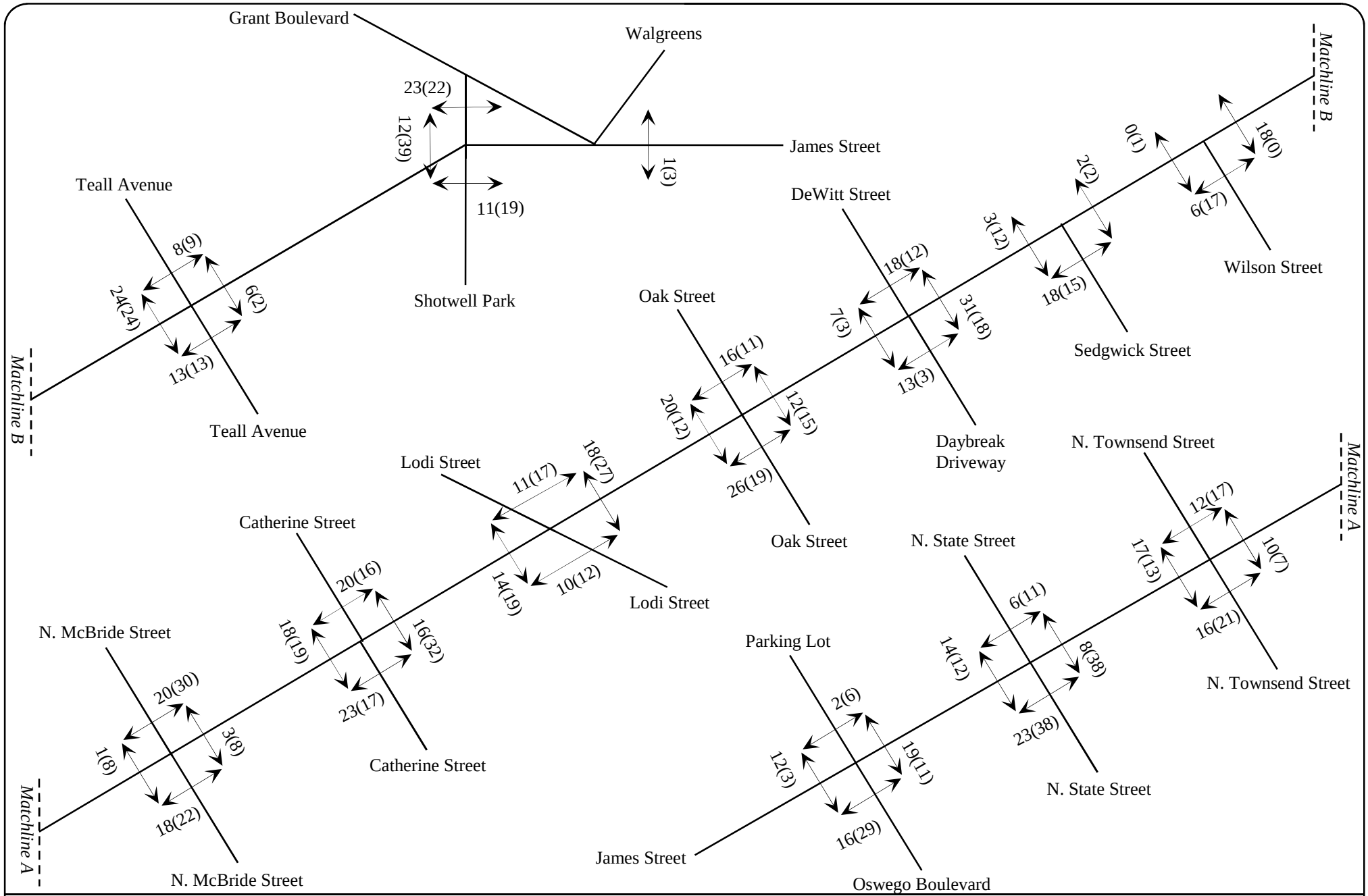

James Street Diet

2009 Existing Pedestrian Volumes
Morning (Evening) Peak Hour

Figure 3

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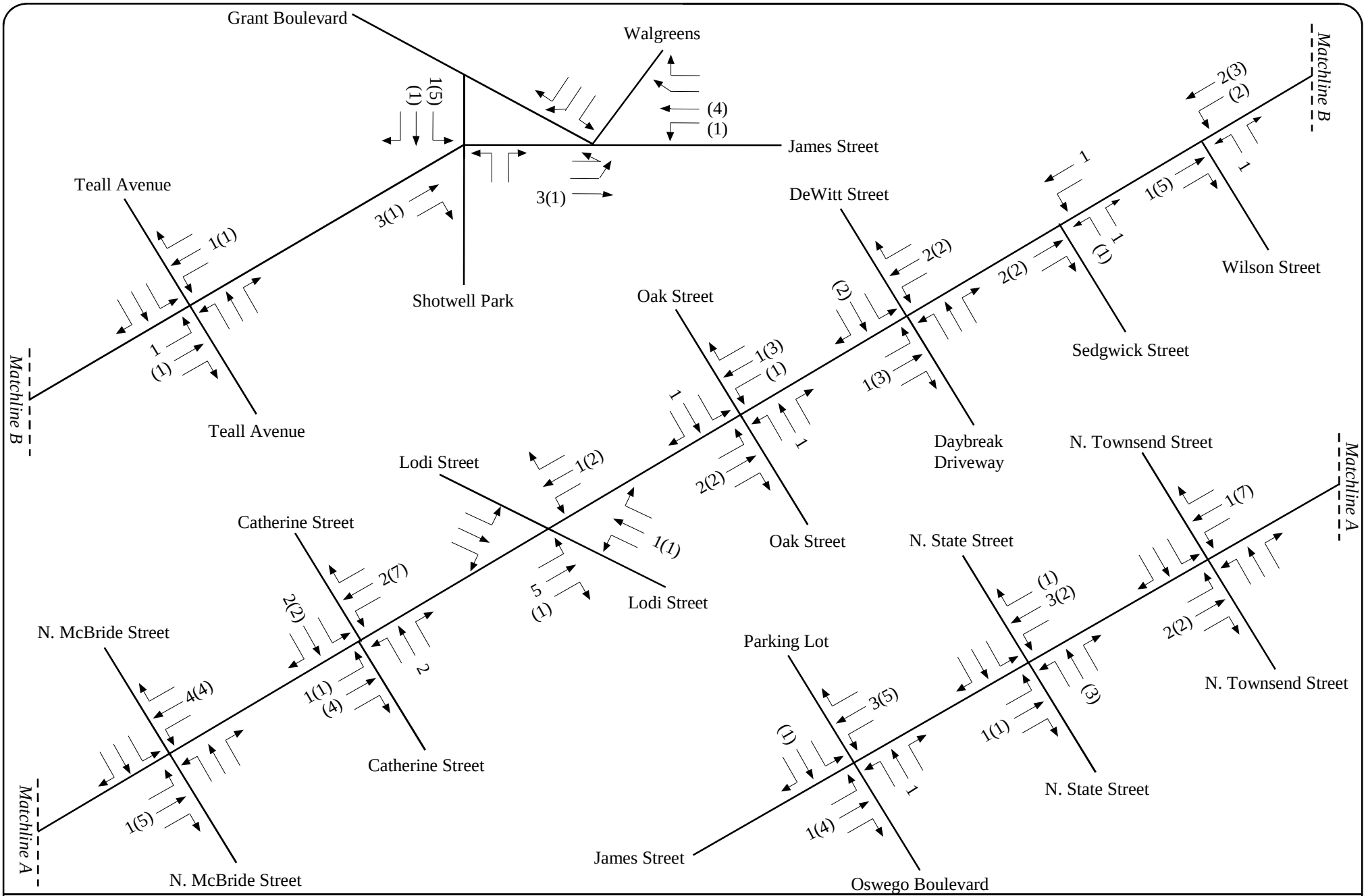

James Street Diet

2009 Existing Bicyclist Volumes
Morning (Evening) Peak Hour

Figure 4

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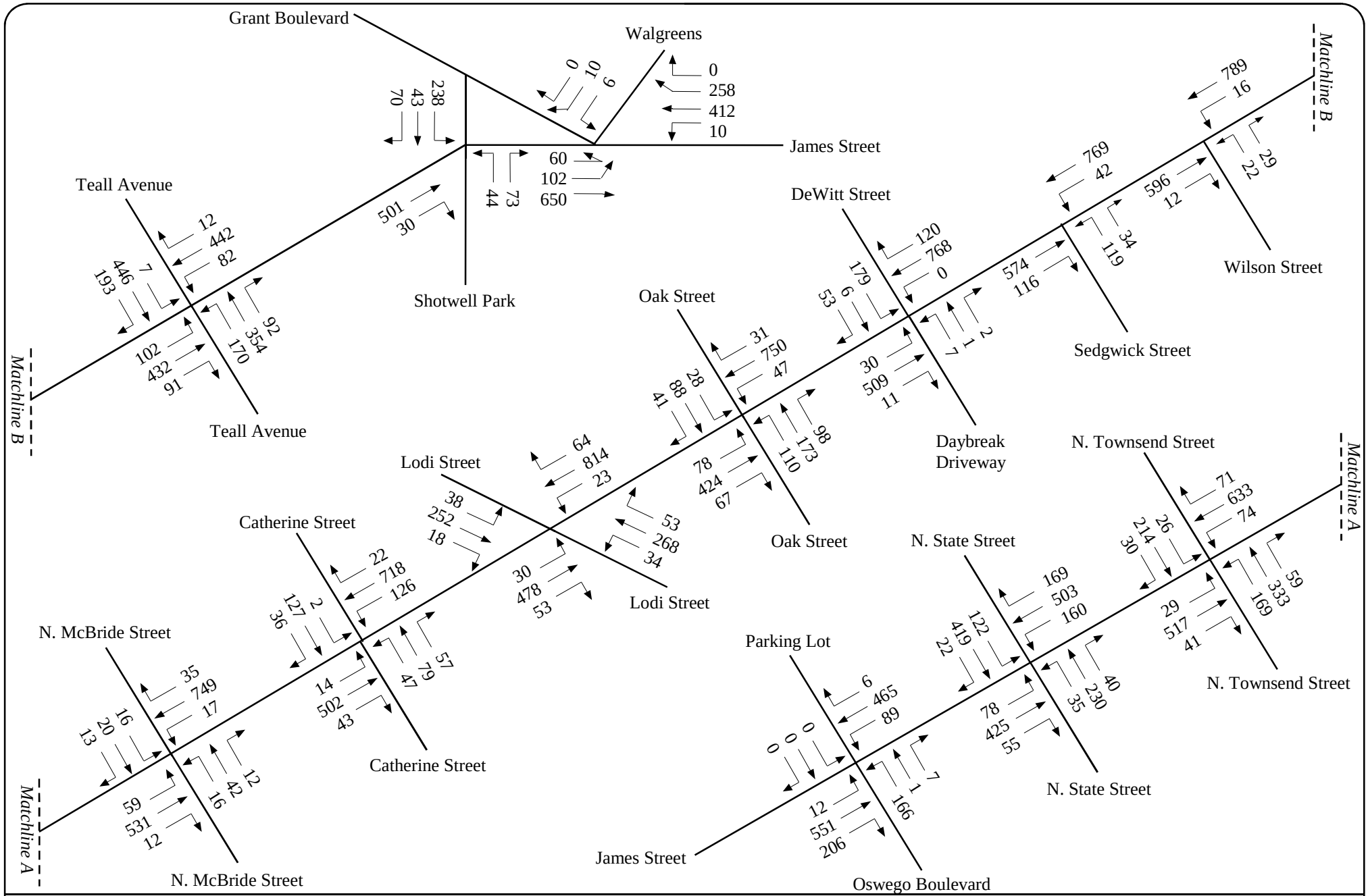

James Street Diet

2030 Projected Traffic Volumes
Morning Peak Hour

Figure 5

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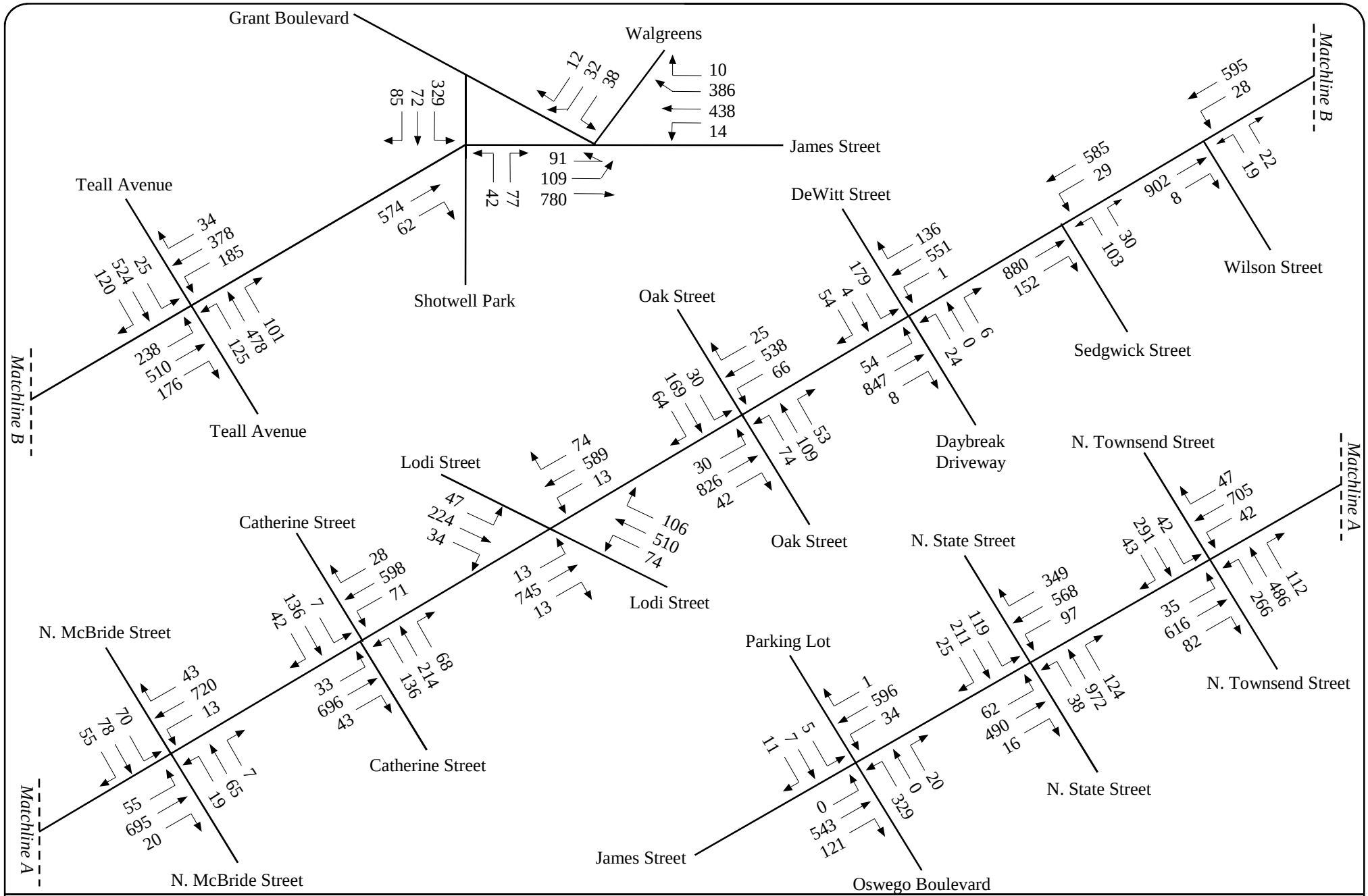

James Street Diet

2030 Projected Traffic Volumes
Evening Peak Hour

Figure 6

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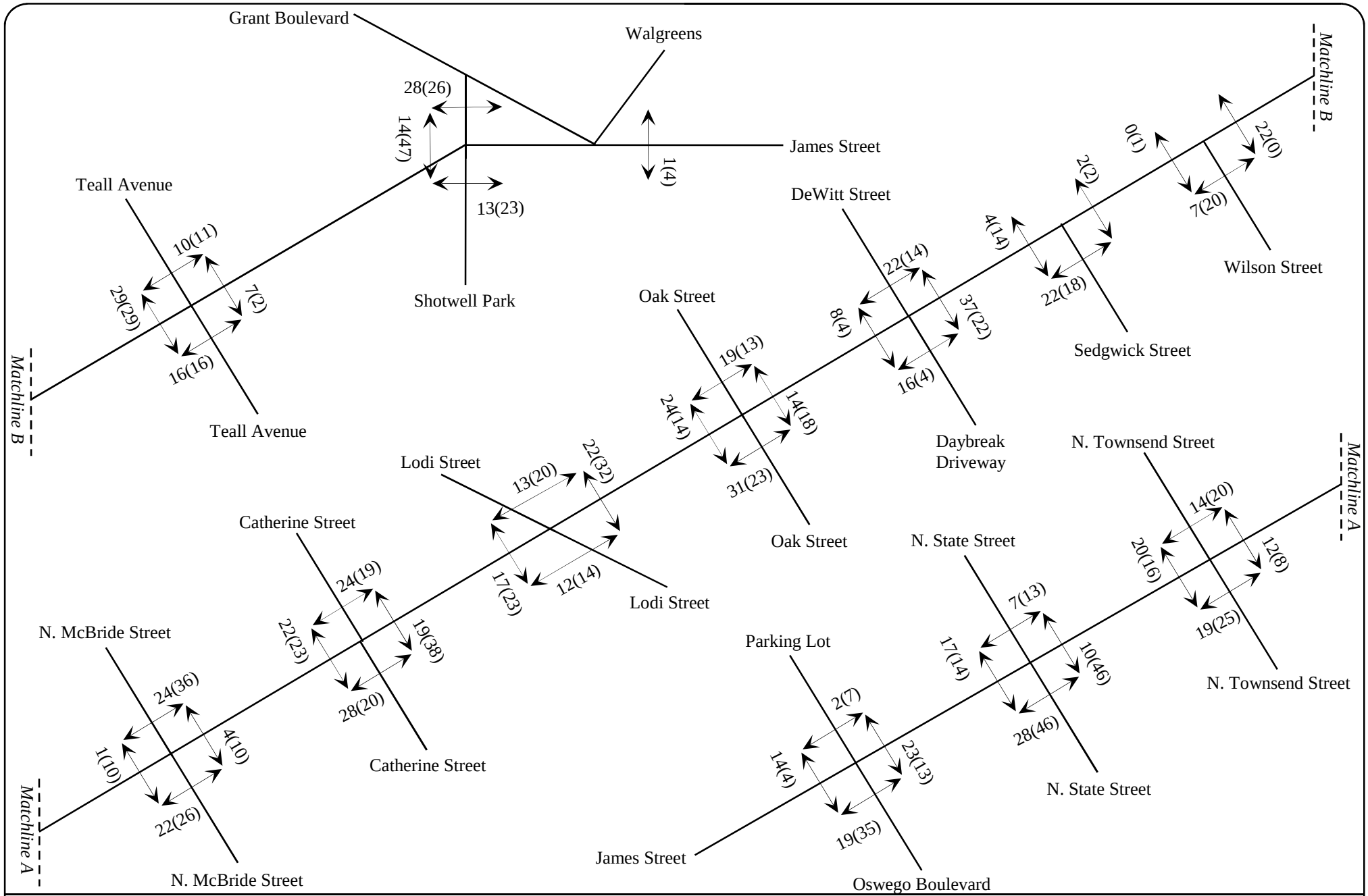

James Street Diet

2030 Projected Pedestrian Volumes
Morning (Evening) Peak Hour

Figure 7

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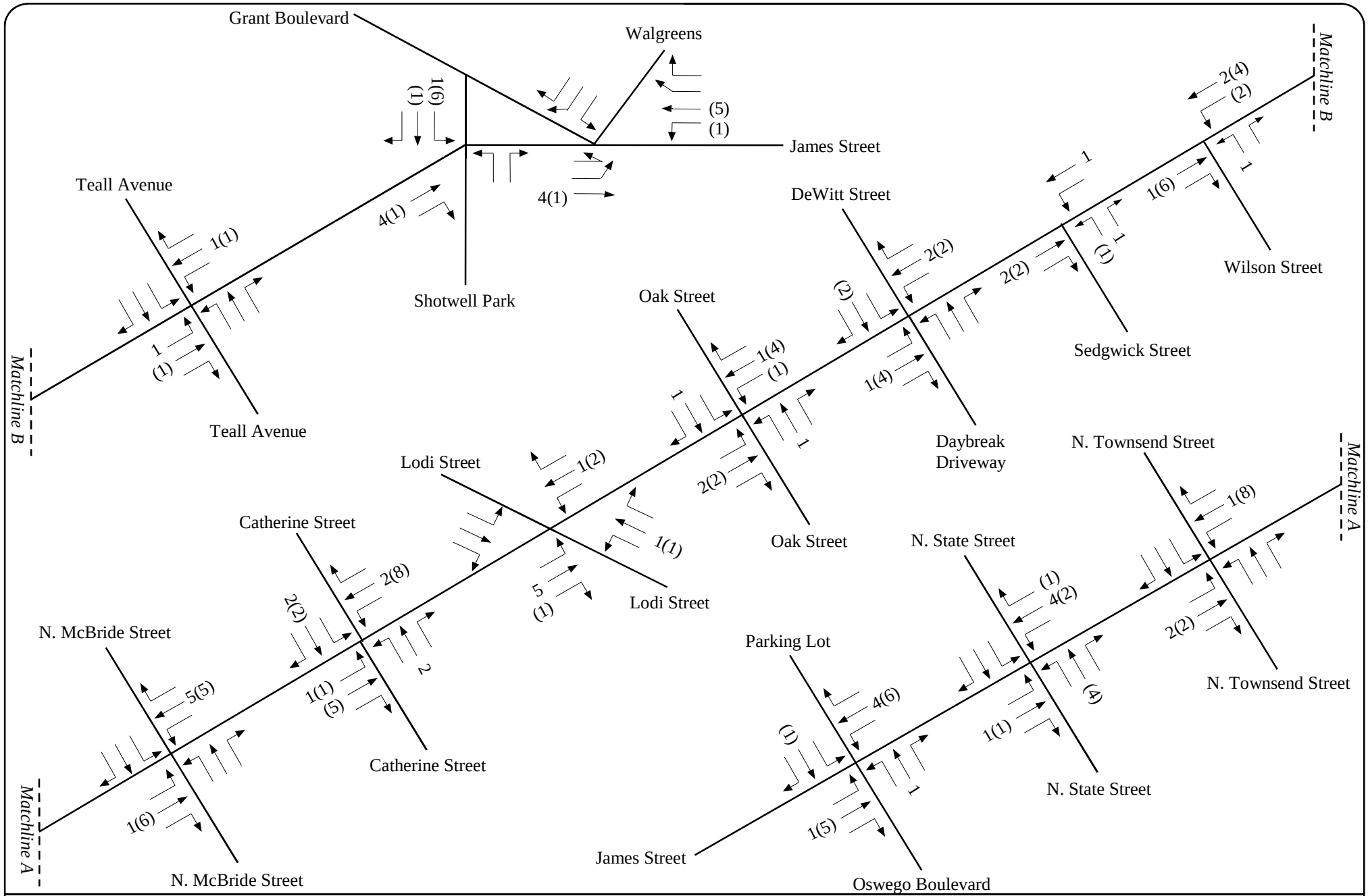

James Street Diet

2030 Projected Bicyclist Volumes
Morning (Evening) Peak Hour

Figure 8

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GTS Consulting

5.0 James Street Road Diet Study Goals and Objectives

A draft list of project goals was developed by Wendel in cooperation with the SMTC and the SAC members. The public provided feedback on these goals at the first public meeting for this project on October 7, 2010 (see Appendix B for a summary of this meeting).

Some participants at the public information meeting expressed reservations about implementing a road diet on James Street. The concerns that were aired mainly revolved around increased travel times and the impact such a plan would have on traffic flow and the character of the area, especially as growth along the corridor continues and traffic increases. There was general agreement among participants that the character of the corridor should be preserved and that opportunities for alternative transportation should be enhanced. Several participants indicated that while they consider the vast greenspace a strength they would be willing to sacrifice some of the greenspace to provide for pedestrian/bicycle facilities or for areas where transit vehicles could be removed from the travel lane during bus stops. Residents also expressed a desire to maintain a vibrant and healthy tree canopy throughout the corridor and advocated for the preservation and protection of street trees. Commuters would like to see traffic light coordination along James Street as a means to improve the flow of traffic.

Using feedback from the SAC and the public, several objectives were developed for each project goal. The final goals and objectives of the James Street Road Diet are as follows:

Goal 1: Livability and Place Making – James Street will become a street that people are attracted to and take pride in.

Objectives

- Enhance the livability and economic vitality of the James Street corridor.
- Create a street that people can use for both active and passive recreational purposes.
- Foster interaction between the neighborhood and street.

Goal 2: Access and Mobility – James Street will consist of enhanced access and mobility opportunities for all users.

Objectives

- Enhance pedestrian facilities and make them accessible to all users, especially disabled persons, seniors, and youth.
- Provide bicycle facilities.
- Provide universal access for all users of the James Street corridor.
- Enhance transit stop amenities and improve access to transit stops.
- Improve transit operational efficiency.

- Consolidate the number and location of transit stops to satisfy ridership demand and improve traffic operations of the corridor.
- Do not degrade existing vehicular levels-of-service.
- Reduce traffic congestion at identified congested intersections/locations.
    - James Street/North State Street
    - James Street/Lodi Street
    - James Street/Sedgwick Street
    - James Street/Teall Avenue
    - James Street/Shotwell Park/Grant Boulevard

Goal 3: Safety – James Street will have improved safety for all users.

Objectives

- Reduce vehicle travel speeds to posted legal speed limits through implementation of traffic calming measures.
- Reduce crash rates along corridor through the use of proven structural and non-structural measures.
- Improve pedestrian/bicycle safety at intersections and other crossings.
- Accommodate year-round pedestrian and bicycle use.
- Minimize conflict between vehicles and transit vehicles making stops.

Goal 4: Flexibility – Road diet options for James Street will be flexible, allowing for choice and discretion to be used in design and implementation.

Objectives

- Corridor features should be interchangeable amongst design alternatives.
- Develop alternatives that can be realized through staged implementation.
- Provide flexibility for modal choice.
- Provide flexibility for project implementation to consider available funding constraints.

Goal 5: Context – James Street will complement and enhance the character of the surrounding neighborhood.

Objectives

- Promote higher density, mixed-use development that is oriented towards the sidewalk within the urban core and urban multiple use area.
- Preserve the existing single family residential character of the Sedgwick and Eastwood neighborhoods.
- Minimize loss of greenspace.
- Minimize right-of-way acquisition.

Goal 6: Balance – James Street will continue to function for various purposes while balancing the needs of commuters, alternative transportation modes, and the residents/community.

Objectives

- Maintain corridor as a convenient commuter route.
- Accommodate and encourage non-vehicular modes of travel.
- Encourage access management in the urban core and urban multiple use areas.
- Provide on-street parking for cars and bicycles where appropriate.

Goal 7: Healthy Environment – James Street will incorporate several sustainable options in order to minimize the impact of the roadway and create a healthy environment.

Objectives

- Incorporate sustainable design features that minimize the impact of the roadway.
- Create a corridor that encourages walking, bicycling, or other non-motorized modes of travel.
- Design solutions should minimize future maintenance and operational costs.

Goal 8: Visual Excellence – James Street will consist of high quality aesthetic improvements consisting of durable materials.

Objectives

- Improve gateways and viewsheds of the corridor.
- Improve the visual appearance of the Western Gateway.
- Improve the visual appearance of the Catherine Street/James Street intersection.
- Preserve and enhance greenspace/vegetation.
- Incorporate design features that require little maintenance.

6.0 Road Diet Foundations

Benefits of a road diet include calming traffic speeds, improving safety, enhancing the streetscape, and providing greater opportunities for multiple transportation modes. The U.S. Department of Transportation has recently undertaken a partnership with the U.S. Department of Housing and Urban Development and the U.S. Environmental Protection Agency to promote sustainable and livable communities. The partnership is intended to provide more transportation choices, improve access to affordable housing, lower transportation costs, and support and enhance existing communities. As U.S. Secretary of Transportation Raymond LaHood pronounced,

> *Creating livable communities will result in improved quality of life for all Americans and create a more efficient and more accessible transportation network that serves the needs of individual communities. Fostering the concept of livability in transportation projects and programs will help America's neighborhoods become safer, healthier, and more vibrant.*

The Federal Highway Administration (FHWA) has been promoting road diets as one way to help implement the sustainable and livable communities initiative. FHWA points out that road diets present an opportunity to provide alternative transportation options, reduce vehicle speeds, reduce the number and severity of crashes, and improve conditions for pedestrians.

6.1 Implications of Road Diets on Mobility and Accessibility

Implementation of a road diet provides opportunities for alternative modes of transportation. Typically, this is accomplished by reallocating portions of the pavement that were originally used for vehicular travel and/or creating new facilities for pedestrians, bicycles, and transit. Enhancement of pedestrian, bicycle, and transit facilities provides more opportunities to walk, bike, or use transit, thereby enhancing the mobility for all users to move about their community. Additionally, providing transportation options helps to reduce the personal transportation costs of owning and maintaining a vehicle, reduces traffic volumes along James Street, and promotes a healthy lifestyle.

The following is an example of an enhanced pedestrian facility that incorporates a textured crosswalk and ADA accessible ramps. Textured pedestrian crosswalks provide greater awareness to drivers that there is the potential for pedestrians, resulting in increased comfort and safety for the pedestrian and a reduction of vehicle speeds through intersections.

Example of an enhanced pedestrian crossing.

Below is a rendering of how a four-lane roadway section can undergo a road diet to a three-lane roadway. The revised roadway consists of two travel lanes, a center two-way left-turn lane, and on-street bicycle lanes.

Rendering of a roadway under a three-lane road diet

6.2 Implications of Road Diets on Traffic Operations

As demonstrated by the traffic operational analysis, implementation of a road diet on James Street has little impact on traffic operations. Simulation model results found that removal of one travel lane in each direction and providing left-turn lanes at all intersections would maintain an acceptable LOS for this corridor. Several intersections will require additional modifications to reduce traffic congestion. Based on these findings, intersection improvements should be evaluated during the alternative development process.

A queue analysis was prepared as part of the Fatal Flaw analysis (Appendix A) to evaluate the impacts associated with a reduction in travel lanes. Occasionally, implementation of a road diet increases vehicle queuing distances at signalized intersections. This is due to the reduction of vehicle storage capacity that results from the elimination of the second travel lane. Optimization of traffic signal phasing and timing as well as the addition of a dedicated left-turn lane with a protected left-turn green phase is used to offset additional queuing distances. Results of the Fatal Flaw queue analysis indicate the need for signal timing optimization and dedicated turn lanes at most intersections.

Under a road diet option, stopping buses have the potential to impact traffic operations. With the present four-lane roadway, buses make stops in the outside lane. Following vehicles have the option to queue behind the bus or use the passing lane to maneuver around the stopped bus. While this presents an opportunity to avoid queuing behind a stopped bus, it introduces a dangerous weaving maneuver that creates a safety concern.

The Fatal Flaw analysis provided a cursory assessment of transit operations in the corridor. Results indicated that under a three-lane configuration, buses stopping in the travel lane may result in undesirable vehicle queuing and create safety hazards. With a three-lane scenario, a stopped bus now blocks the single travel lane. Depending on the time of day and the frequency of bus operations, increased travel times may result. For this reason, the treatment of bus stops should be a critical consideration when developing road diet alternatives.

6.3 Implications of Road Diets on Safety

Implementing a road diet can improve the safety of a roadway. Road diets act as a traffic calming measure to reduce vehicle speeds by reducing the number of lanes, reducing lane width, and/or eliminating opportunities to pass slower vehicles. Since there is not an additional lane to pass a slower vehicle, vehicles must travel the speed of the vehicle in front of them. This, combined with the removal of left-turning vehicles from the travel lane, reduces the dangerous maneuver of weaving between lanes. By calming the speed of traffic, people have a sense that there is less vehicle dominance of the roadway and the corridor becomes safer and more comfortable to use for alternative transportation modes.

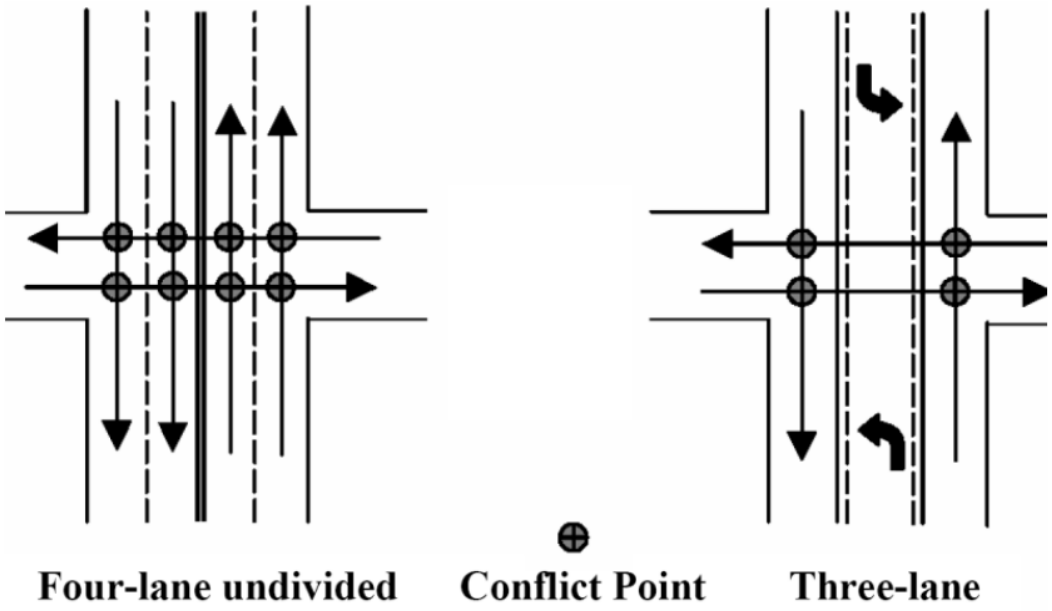
Studies have shown that road diets can improve the safety of a roadway by reducing the number and severity of crashes. Road diets are implemented to reduce three types of crashes: rear end crashes resulting from vehicles slowing or coming to a stop in the travel

lane to make a left turn, left-turn crashes against another car resulting from a turning vehicle's view of oncoming traffic being obstructed by an oncoming left-turning vehicle, and side swipe crashes resulting from vehicles weaving between travel lanes to avoid stopped or slow vehicles.

The FHWA Report "Evaluation of Lane Reduction 'Road Diet' Measures on Crashes" studied the change in total crashes resulting from road diet conversions. The study concludes that on average, implementation of a road diet reduced the number of crashes along a roadway by 29%, and in some instances by as much as 49%[3].

Figure 9 below illustrates the conflict points experienced along a four-lane roadway at an intersecting two-lane roadway as compared to a three-lane roadway at an intersecting two-lane roadway. Under a three-lane roadway, there are half as many conflict points (four) as there are with the four-lane roadway (eight), thus, more possibilities for a crash to occur.

Figure 9: Intersection Conflict Points[4]

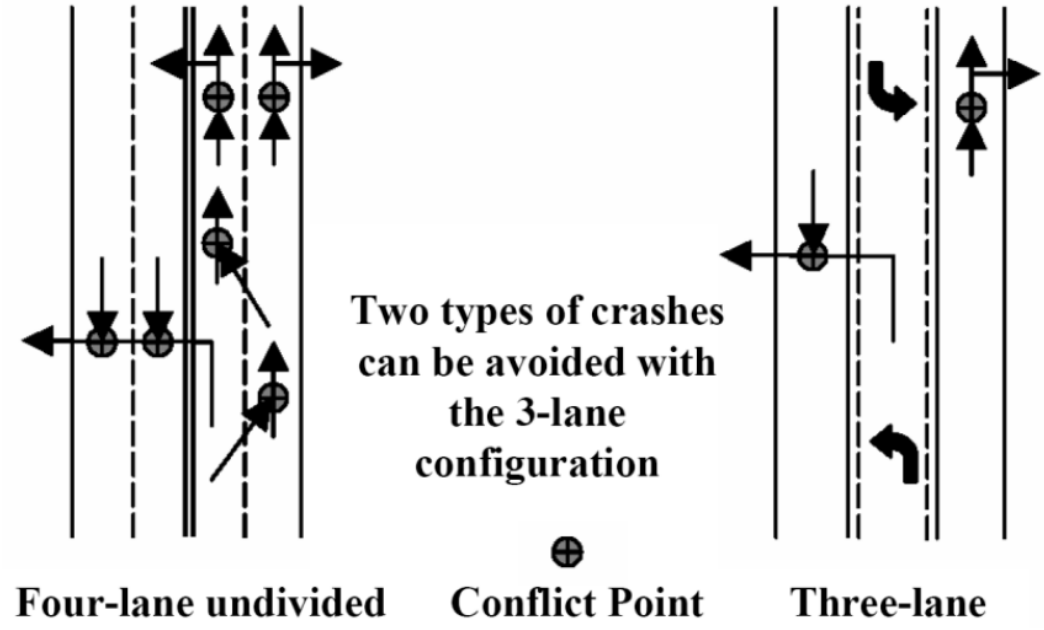


[3] Highway Safety Information System, *Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries* (Federal Highway Administration, 2004).
[4] Iowa State University Center for Transportation Research, *Guidelines for the Conversion of Urban Four-Lane Undivided Roadways to Three-Lane Two-Way Left-Turn Facilities* (Iowa Department of Transportation, 2001).

Figure 10 below indicates the conflict points experienced at a mid-block location with a four-lane roadway, compared to a three-lane roadway. With a four-lane roadway, there are six conflict points, whereas with a three-lane roadway, there are only two conflict points.

By reducing the roadway from four through travel lanes to two through travel lanes and a center turn lane, the potential for two types of crashes are significantly reduced: sideswipe crashes and rear-end crashes resulting from a left-turning vehicle stopped in the travel lane. The potential for side swipe crashes are reduced by eliminating the ability to weave in and out of traffic lanes to avoid a slower or stopped vehicle. The dedicated center turn lanes takes left-turning vehicles out of the travel lane, thus reducing the potential for the rear end crashes that result from left-turning vehicles stopping in the travel lane.

Figure 10: Mid-Block Conflict Points[5]

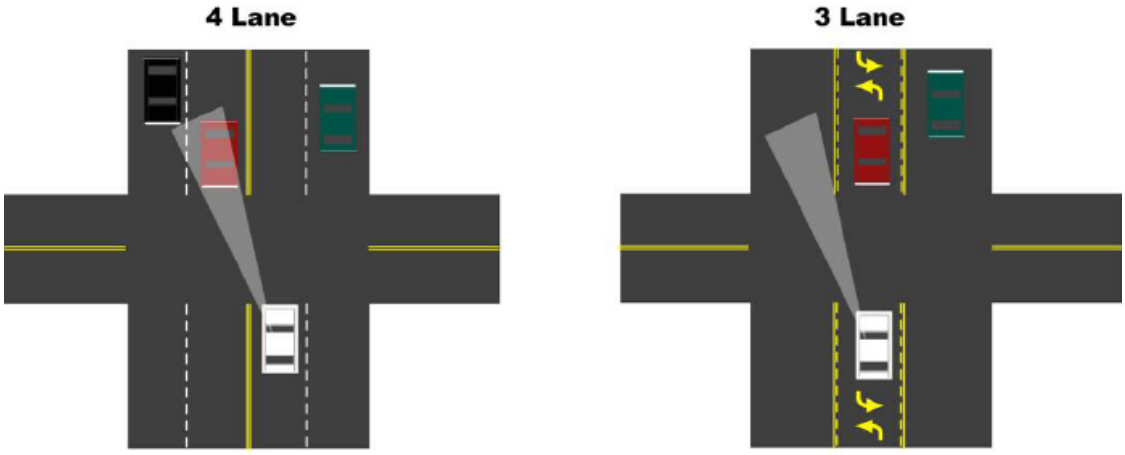


By implementing a road diet and eliminating one through travel lane from a four-lane roadway, sight lines for turning vehicles are improved. With a four-lane roadway, a left-turning vehicle must not only stop within a travel lane to make a turn, but must also look across two oncoming travel lanes. Additionally, when an oncoming vehicle is making a left-turn, the driver's sight line of the outside travel lane is obscured, especially when the oncoming vehicle making the left turn is larger.

[5] Iowa State University Center for Transportation Research, *Guidelines for the Conversion of Urban Four-Lane Undivided Roadways to Three-Lane Two-Way Left-Turn Facilities* (Iowa Department of Transportation, 2001).

With only two through travel lanes, a left-turning vehicle is able to concentrate on a single oncoming travel lane, rather than multiple travel lanes. When a dedicated left-turn lane is provided, such as under a three-lane roadway, the driver's view of the oncoming traffic is further improved. Figure 11 below provides a graphical representation of how the sight lines are improved under a three-lane roadway.

Figure 11: Sight Lines[6]



Road diets also improve safety for pedestrians and bicyclists. This increased safety helps enhance the comfort level needed to encourage potential walkers and/or bicyclists to convert their transportation choice from a vehicle to walking or biking. The inclusion of dedicated facilities for alternative transportation modes, often with separation from vehicular traffic, combined with the calming of traffic introduces an atmosphere conducive to people choosing to use alternative transportation modes. Further, road diets typically remove a travel lane, thus making it safer for pedestrians to cross the street as they can concentrate on fewer vehicular movements and have fewer lanes to cross.

6.4 Implications of Road Diets on Quality of Life

It is a widely understood and accepted notion that the design of a roadway can have a significant impact on the character of the surrounding neighborhood and can affect the way people relate to the corridor. Road diets can enhance the character of a neighborhood by reducing the impacts of the roadway and softening the transition between the roadway and adjacent uses. This is especially beneficial in maintaining residential character. Road diets can help create an environment where residents feel comfortable living on a heavily traveled street. Typically, with a road diet scenario, ingress to and egress from residential driveways is easier and safer due to the introduction of a two-way left-turn lane and the reduction of potential conflict points.

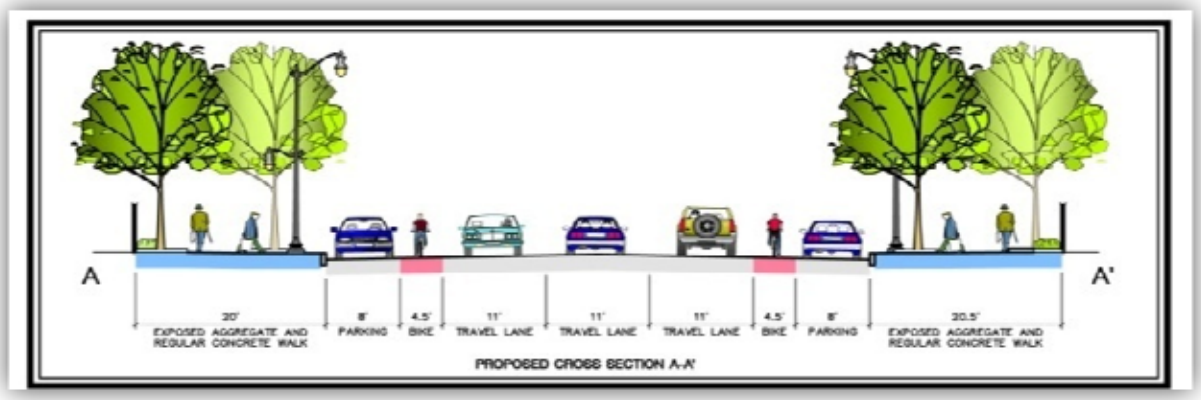
[6] Iowa State University Center for Transportation Research, *Guidelines for the Conversion of Urban Four-Lane Undivided Roadways to Three-Lane Two-Way Left-Turn Facilities* (Iowa Department of Transportation, 2001).

Road diets encourage the use of alternative forms of transportation and can help encourage pedestrian oriented business districts and walkable neighborhoods by creating an environment where people want to be. The ability to walk and/or ride a bicycle helps promote a healthier lifestyle and can assist in reducing the amount of traffic, which helps improve air quality. Further, as road diets promote walking, they foster social interaction and encourage physical activity, thus promoting healthy, sustainable neighborhoods.

Figures 12 and 13 are examples of proposed road diet projects located in Buffalo, New York that are built around enhancing the quality of life of a neighborhood and encouraging reinvestment/redevelopment of the corridors. Both figures contain multiple graphics. Both examples reduce the number of travel lanes and reallocate pavement for on-street bicycle lanes and on-street parking. Both provide enhancements through the use of stamped pedestrian crosswalks with bulb outs, bus shelters, landscaping and decorative hardscaping, and pedestrian level lighting.

Figure 12: Genesee Street Road Diet, Buffalo, New York

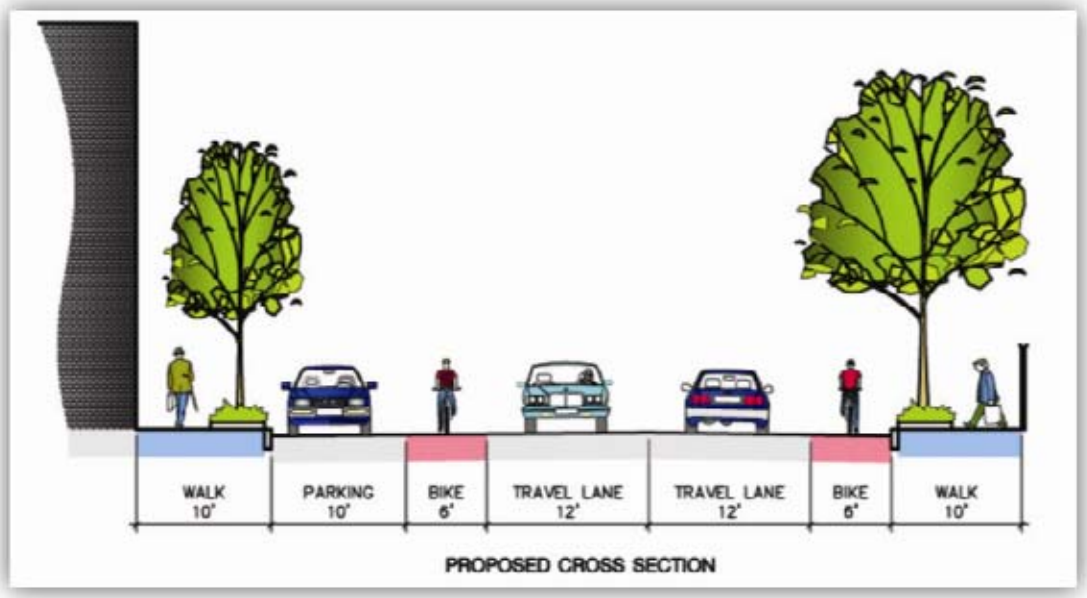
Overview of Genesee Street Road Diet.



Sample cross-section of Genesee Street Road Diet reducing the number of travel lanes and providing on-street parking and improved pedestrian/bicycle facilities.

Figure 13: Seneca Street Road Diet, Buffalo, New York

Rendering of Seneca Street Road Diet showing improved pedestrian/bicycle facilities and a streetscape to enhance the quality of life.



Rendering of proposed Seneca Street cross-section reducing the width of travel lanes and providing on-street parking and improved pedestrian/bicycle facilities.

7.0 Development and Discussion of Roadway Alternatives

The alternatives developed for the James Street corridor were designed to respond to input provided by the SAC and the public, as well as to address the goals and objectives of this study.

7.1 Approach to Developing Roadway Alternatives

An outline of proposed roadway alternatives designed to acknowledge and address the project goals and objectives was evaluated by the SAC at a meeting on December 7, 2010. Following this SAC meeting, the project consultants conducted a one day design charette on January 12, 2011, that allowed individuals with specialties in traffic and highway engineering, landscape architecture, and urban and transportation planning to prepare roadway alternatives. In total, five roadway alternatives were developed for initial consideration by the SAC and the public. Some of the initial alternatives also provided a secondary option to consider for specific segments throughout the corridor. The five alternatives were:

1. **Alternative 1: No Build**. This alternative retains the existing road cross-section and lane allocations and maintains existing traffic signal timing. This alternative was used as a basis of comparison for the other alternatives. The No Build alternative speaks to the comments received at the first public meeting that suggested no change to the James Street Corridor was needed.
2. **Alternative 2: Pavement Reallocation**. This alternative represents modifications to the roadway within the existing pavement. Some site-specific construction may be necessary at certain intersections and where bus pull-off areas are located. The proposed section includes one travel lane in each direction with either a continuous two-way left-turn lane or dedicated left-turn lanes at intersections. This alternative retains existing pavement widths to the greatest extent practicable to be used for on-street parking and/or an on-street bicycle lane.
3. **Alternative 3: Enhanced Transit**. This alternative reallocates the existing pavement utilizing the existing inside travel lane in each direction for vehicular traffic and the existing outside travel lane in each direction for use solely by transit vehicles and bicycles. This alternative allows for enhanced transit service along James Street while still providing on-street bicycle facilities. Approaches at signalized intersections would need to be widened in order to accommodate dedicated left-turn lanes.
4. **Alternative 4: Roadway Reconstruction**. This alternative proposes reconstruction to the entire corridor in the form of pavement widening or narrowing, constructing off-street multi-use paths, and other modifications. This alternative proposes converting the existing four-lane section to a three-lane or less section. In some areas, the reconstruction will widen portions of the roadway to allow for alternative transportation modes or on-street parking. In other areas, reconstruction may reduce the pavement footprint and reallocate abandoned pavement to greenspace. This alternative would provide an off-street multi-use path along portions of the corridor and introduces green

stormwater drainage options. This alternative would also have the greatest potential to reduce the footprint of the impervious pavement and associated stormwater runoff.

5. **Alternative 5: Traffic Signal Coordination without Road Diet Element**. This alternative proposes leaving the existing roadway layout as is, but proposes optimizing and coordinating traffic signals along the corridor to reduce delay. Pedestrian and transit improvements as well as aesthetic enhancements can be incorporated into this alternative.

7.2 Common Attributes

There are several features and/or concepts that are common throughout several of the alternatives.

7.2.1 Roadway Improvements

Dedicated Turn Lanes

In order to maintain acceptable LOS at signalized intersections, dedicated left-turn lanes are either retained or provided at all signalized intersections in Alternatives 2, 3, and 4. Further, due to the volume of right-turning vehicles, dedicated right-turn lanes are provided along westbound James Street at North State Street and along eastbound James Street at Teall Avenue. These turn lanes are provided by restriping the two-way left-turn lane into a dedicated left-turn lane, dropping on-street parking near intersections to stripe dedicated left- and/or right-turn lanes, or widening the intersection to provide space for turn lanes.

Oswego Street to North State Street Segment

Due to the volume of traffic between Oswego Boulevard and North State Street, the four-lane section will need to be maintained as is and carried through the North State Street intersection for all of the alternatives to maintain acceptable traffic LOS. East of North State Street, the four-lane section will transition to the cross-section for the proposed alternative. To further improve traffic operations and reduce overall delay through the corridor, traffic signal optimization is incorporated in Alternatives 2, 3, 4, and 5.

James Street/Shotwell Park/Grant Boulevard Intersection Improvement Concepts

All of the alternatives assume that no change is made to the intersection of James Street/Shotwell Park/Grant Boulevard. This intersection was identified as an intersection that requires special attention. Therefore, a separate analysis was conducted for this intersection with two intersection design concepts developed for this intersection. James Street corridor alternatives are not dependent upon improvements being made to this intersection, and each alternative can be developed without improvements made to the intersection.

Widen Intersections

As part of Alternative 3, there may be a need to widen certain intersections to allow for dedicated left-turn lanes. For Alternatives 2 and 4, the center two-way left-turn lane can be used for a dedicated left-turn lane at intersections.

Milling and Pavement Improvements
Various alternatives and segments may require mill and overlay to reestablish the crown of the roadway at the centerline of the cross-section. These locations include segments of alternatives that incorporate on-street parking on one side of the street, which results in offsetting the centerline of the travel roadway, including:

- Alternative 2 – Pavement Reallocation, Urban Core Segment C (Option 2).
- Alternative 2 – Pavement Reallocation, Urban Multiple Use Segment D (Option 2).
- Alternative 3 – Enhanced Transit, Urban Core Segment B.
- Alternative 4 – Roadway Reconstruction, Urban Core Segment B & C (Option 1).

7.2.2 Transit

Consolidation of Stops
Where the opportunity exists, it is suggested in Alternatives 2, 3, and 4 that existing transit stops along James Street be consolidated to reduce the frequency of stops. The remaining major transit stops should be placed at distances that meet Centro's parameters and, where feasible, enhanced with shelters and other features (see Appendix C – CNYRTA Service Standards and Guidelines).

After an analysis of boardings and alightings at bus stops along James Street, and after reviewing Centro's transit service parameters, the following bus stop structure is proposed for both eastbound and westbound buses:

- **North State Street** – Maintain bus stop and upgrade to provide shelters.
- **North Townsend Street** – Maintain bus stop with signed stops.
- **North McBride Street** – Maintain bus stop with shelters.
- **Catherine Street** – Maintain bus stop with shelters.
- **Lodi Street** – Maintain bus stops and upgrade to provide shelters.
- **Highland Street** – Maintain bus shelters and relocate the mid-block stop near James Square Nursing Home and Farmers & Traders Insurance Company. There are a high number of boardings and alightings at the mid-block bus stop near the James Square Nursing Home and Farmers & Traders Insurance Company that can be shifted to the stop at Highland Street to provide for a safer pedestrian crossing.
- **Oak Street** – Maintain bus stop and upgrade to provide shelters. There are a high number of boardings and alightings at the mid-block bus stop near WSYR

that can be shifted to the stop at Oak Street to provide for a safer pedestrian crossing.

- **DeWitt Street** – Eliminate bus stop and consolidate with Sedgwick Street. Provide pedestrian improvements at intersection.
- **Sedgwick Street** – Maintain bus stop.
- **Sedgwick Drive** – Eliminate bus stop.
- **Durston Avenue/Wilson Street** – Maintain bus stop.
- **Teall Avenue** – Maintain bus stop and upgrade to provide shelters. Westbound bus stop can use existing bus pull-off area in front of Lincoln Middle school.
- **Hixson Avenue/Rugby Road** – Eliminate bus stop.
- **Cook Avenue** – Maintain bus stop.
- **Hastings Place** – Eliminate bus stop.
- **Clifton Place** – Eliminate bus stop.
- **Shotwell Park** – Consolidate bus stop with Hickok Avenue and locate east of the intersection of Grant Boulevard.

Bus Pull-Offs

Buses making stops are removed from the travel lane in Alternatives 2 and 4 so as to not interfere with the flow of vehicular traffic. To remove stopped buses from the travel lane in Alternatives 2 and 4, the construction of bus pull-offs is part of the design plan (a typical bus pull-off plan view is shown in Figure 14). Bus pull-offs should be at least twelve feet wide. In order to fully remove stopped buses from the travel lane, there are instances where bus pull-off areas are suggested within the existing tree lawn. This will allow a bus to fully pull out of the travel lane, load and unload passengers and/or carry out a time check, then pull back into the travel lane. Depending upon the width of the tree lawn area, there may be areas where the sidewalk would need to be relocated to allow for a full bus pull-off or the bus pull-off would need to consist of a slightly reduced width. There may be instances, particularly east of Sedgwick Street, where residential driveways are more numerous, the location and/or design of bus pull-offs may have to be adjusted some to avoid impacting these driveways.

Where road segments include on-street parking, it is possible that rather than developing a bus pull-off area into the tree lawn, the on-street parking can be removed to allow space for buses to stop outside of the travel lane. Under Alternative 3, since buses are traveling in a dedicated bus/bicycle lane, buses would make stops within the dedicated lane, and bus pull-offs would not be needed.

Figure 14: Example Plan View of Proposed Bus Pull-Offs

Transit Shelters

The installation of bus shelters should be considered at bus stops in Alternatives 2, 3, and 4 based upon the following criteria:

- At least 50 passengers per day board or transfer at a bus stop;
- There must be no alternate shelter available (i.e. building overhang, etc.);
- There must be sufficient space to install a shelter;
- If more than 15% of the users of a bus stop are seniors or disabled, then the boarding standard may be reduced by 50% or up to 25 passengers; and,
- Location of shelters along suburban trunk lines should be made if the installation of a shelter can eliminate the need for a route deviation.

Signal Preemption

To facilitate the movement of buses back into the travel lane, far-side bus stops and traffic signal preemption for buses may be implemented in Alternatives 2, 3, and 4. Signal preemption allows buses to control the phasing of a traffic signal so that when a bus approaches a traffic signal on a green phase, the bus can hold the green phase long enough to clear the intersection. The bus stop would be located on the far side of the intersection. The traffic signal would turn to a red phase after the bus passes through

the intersection to make it easier for the bus to merge back into the travel lane after it loads/unloads passengers.

7.2.3 Pedestrian and Bicycle Facilities

Sidewalk Improvements

In order to make the corridor more accessible to all users, pedestrian facilities and crosswalks should be upgraded according to ADA standards in Alternatives 2, 3, 4, and 5. Sidewalks can be improved where conditions have deteriorated and widened to a minimum width of 5 feet where needed to enhance pedestrian use. Throughout the segment of James Street between Oswego Boulevard and North State Street, a grade or barrier separated path located within the sidewalk area to accommodate bicycles should be considered.

Bus Stop Access Improvements

Pedestrian access to bus stops should be improved in all alternatives so that passengers will not have to traverse steep grades or tree lawn areas, which can be filled with snow in winter, to access a bus stop. There may be instances where providing bus shelters alongside bus pull-off areas may result in some encroachment into the sidewalk area. In these cases, the sidewalk may need to be relocated within the right-of-way to allow sufficient room for a full bus pull-off and shelter area.

Bicycle Improvements

With Alternatives 2, 3, and 4, bicycle racks should be placed at strategic locations throughout the corridor to provide parking for bicycles. Improved pedestrian level lighting is another common feature advocated for each alternative to make the corridor more conducive to bike and pedestrian use. Where bicycle facilities are proposed (either on-street or off-street), they should provide connections to existing cross street bicycle facilities (where present) or be compatible to connect to future bicycle facilities.

7.2.4 Landscaping and Aesthetics

For Alternatives 2, 3, and 4, landscape and aesthetic improvements are proposed throughout the corridor to make it look less like a commercial thoroughfare and more like an urban neighborhood.

Street Trees

Replacing street trees that have been removed or are damaged within the tree lawn between the sidewalk and pavement with a mix of urban tolerant street trees will maintain and enhance the vast tree canopy that exists throughout the corridor.

Lighting

Replacing overhead street lights with aesthetic lighting standards and energy efficient lighting will provide pedestrian level lighting that meets sustainability objectives. This will also retain the existing single family residential character of the eastern portion of the corridor.

Gateway Improvements
Aesthetic improvements could focus on the gateways to/from the James Street corridor. Enhancements made to the western gateway where the I-81 viaduct exists, along with improved lighting beneath the viaduct, and sidewalks will improve pedestrian/bicycle safety and comfort. Further, viaduct supports and faces can be decorated to create a more visually attractive connection between Downtown and the James Street corridor. Enhancements could also be provided at the eastern gateway to transition from the residential area of James Street into Eastwood.

Street Furniture
Benches and trash receptacles should be provided at all bus stops to provide for a more comfortable waiting area and reduce the amount of litter experienced around bus stops. Within the Urban Core, additional benches and trash receptacles, and even planters can be provided to further enhance the pedestrian experience and accommodate a denser urban neighborhood.

7.2.5 Access Management
The need for continuous mid-block turning lanes is eliminated for options developed as part of Alternatives 2 and 4 that propose access control and elimination of mid-block curb cuts throughout the Urban Core area. Eliminating curb cuts keeps turning movements to intersections with alternative access to parcels provided from side streets. It further allows for a continuous pedestrian friendly streetscape and additional, uninterrupted on-street parking, which further promotes the development of an urban village extending from Downtown east to Lodi Street. While access management is not required, it greatly improves the efficiency of the corridor. The areas where curb cuts are removed can be reclaimed for tree lawn and potentially used for green stormwater management areas. Access management is something that can be accomplished through a phased approach to closing existing curb cuts and providing alternative access as redevelopment projects come forth or as funding becomes available.

7.3 Alternative Development
The following is a more detailed summary of the five roadway alternatives developed for the James Street corridor. Cross-sections were developed to identify the proposed typical mid-block conditions for each alternative. To further specify the features of various portions of the corridor, the corridor was broken down into a series of segments. Segments were chosen based on changes to neighborhood context, variations in pavement width, and variations to pavement allocation. Alternative options for segments are identified as “Option 1” or “Option 2”.

Cross-sections were developed for the various segments in each alternative. A number of segments and alternatives share common cross-sections. For each alternative, a table was

developed to identify features of each segment throughout the corridor, including proposed pavement width, pavement allocation, transit considerations, pedestrian considerations, and other considerations.

7.3.1 Roadway Segments

1. Segment A – Oswego Boulevard to North State Street.
    - This segment is located within the Urban Core character zone and is generally located beneath the I-81 viaduct. Due to the volume of traffic between Oswego Boulevard and North State Street, the existing four-lane section will need to be maintained as is and carried east through the North State Street intersection, before transitioning to one of the cross-section types identified in the alternatives. Therefore, the cross-section for Segment A will be the same for all alternatives and consist of four travel lanes with dedicated left-turn lanes at North State Street and a dedicated westbound right-turn lane on James Street at North State Street.
2. Segment B – North State Street to North Townsend Street.
    - This segment is located within the Urban Core character zone and is the widest portion of the James Street corridor, generally at 52 feet wide. This segment is the only area that currently provides on-street parking along the south side of James Street.
3. Segment C – North Townsend Street to Lodi Street.
    - This segment is located within the Urban Core character zone. The range in pavement width is minimal (40-42 feet), therefore the cross-section for this segment does not vary much. The design was developed at a consistent 40-foot pavement width to show that the proposed cross-section can fit within the 40-foot section. Where the pavement width increases to 42 feet, the cross-section can be varied slightly to accommodate the additional pavement area.
4. Segment D – Lodi Street to Sedgwick Street.
    - This segment is located within the Urban Multiple Use character zone. As with Segment C, widths are generally in the range of 40-42 feet, and the cross-section for this segment does not vary much. The design was developed at a consistent 40-foot pavement width to show that the proposed cross-section can fit within the 40-foot section. Where the pavement width increases to 42 feet, the cross-section can be varied slightly to accommodate the additional pavement area.
5. Segment E – Sedgwick Street to Shotwell Park.
    - This segment is located within the Urban Residential character zone where there are numerous driveways. The range in pavement width is minimal (40-42 feet), so the cross-section for this segment was developed at a consistent 40-foot pavement width to show that the proposed cross-section can fit within

the 40-foot section. The cross-section can be varied slightly to accommodate additional pavement width in areas where it exceeds 40 feet.

Specific features of an alternative should not be determined to apply only to that alternative. Rather, features of the different segment alternatives are meant to be flexible and show various options that can be used for that particular segment. There may be instances where various segment options from different alternatives are preferred. These various segment options that are preferred can be extracted from the individual alternatives and used individually to develop a separate preferred alternative.

7.3.2 Roadway Alternatives

7.3.2.1 Alternative 1 – No Build

Alternative 1 retains the existing road cross-section and lane allocations and operates under the current traffic signal timing. This alternative is analyzed under the 2030 future conditions, and is used as a basis of comparison for the other alternatives. The No Build Alternative does not propose any changes to the roadway configuration and maintains four travel lanes with existing widths and configurations, dedicated left-turn lanes at North State Street, Teall Avenue, and Grant Boulevard, and on-street parking along south side between North State Street and North Townsend Street. Additional features are outlined in Table 9.

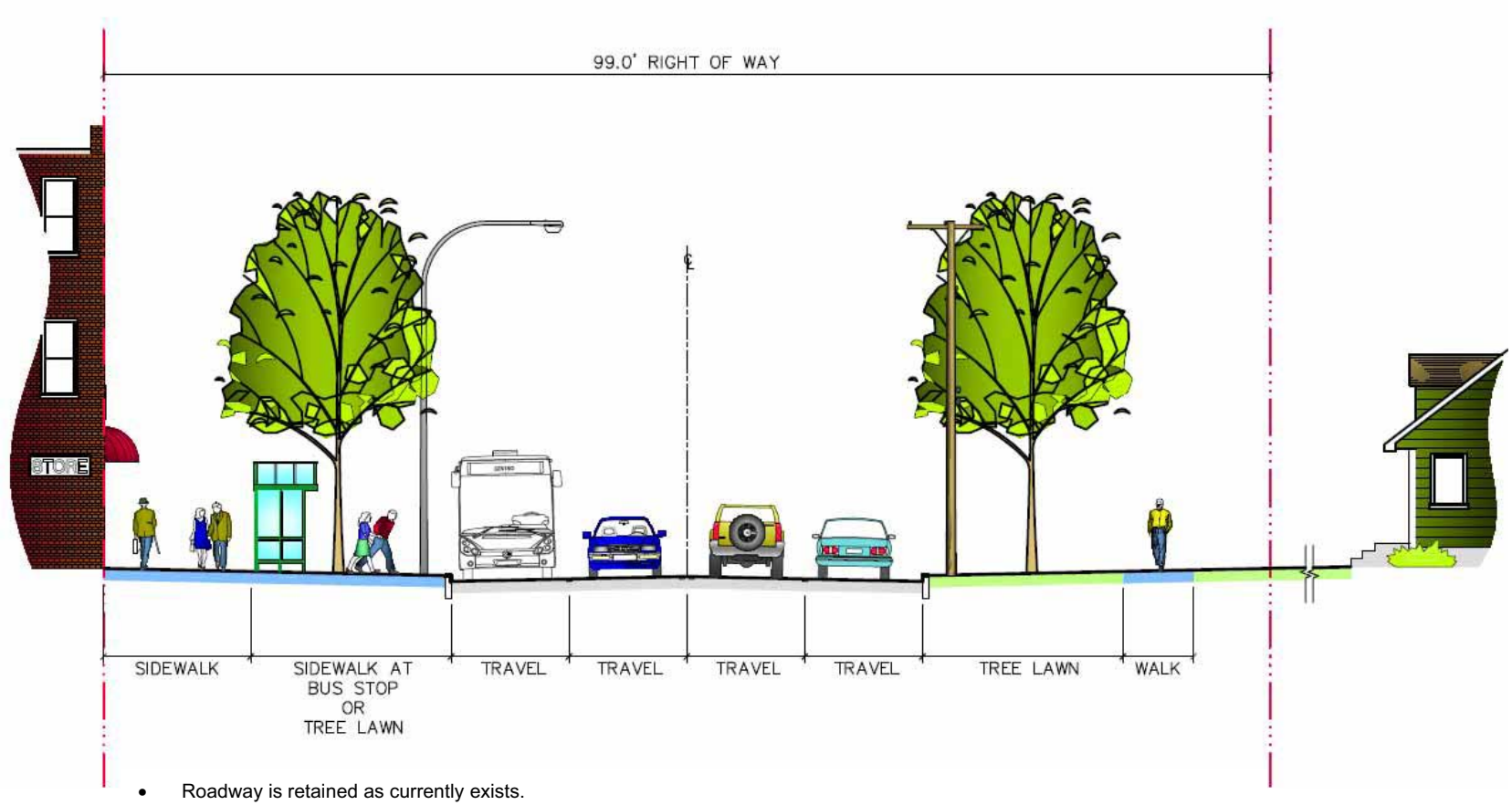
Table 9: Alternative 1 (No Build) Details of Segments

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Core	**A** **Oswego Blvd. to N. State St.**	46’	• Four travel lanes. • Left-turn lanes at N. State Street. • Westbound right-turn lane to N. State Street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclist share outside travel lane with vehicles.	• Maintain existing traffic signal timing.
	B **N. State St. to N. Townsend St.**	52’	• Four travel lanes. • On-street parking on south side.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclist share outside travel lane with vehicles.	• Maintain existing traffic signal timing.
	C **N. Townsend St. to Lodi St.**	40’-42’	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclist share outside travel lane with vehicles.	• Maintain existing traffic signal timing.

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Multiple Use	**D** **Lodi St. to Sedgwick St.**	40'-42'	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclist share outside travel lane with vehicles.	• Maintain existing traffic signal timing.
Urban Residential	**E** **Sedgwick St. to Shotwell Park.**	40'-42'	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclist share outside travel lane with vehicles.	• Maintains dedicated left-turn lanes at Teall Ave. • Maintain existing traffic signal timing.

Alternative 1 – No Build

All Segments



- Roadway is retained as currently exists.

7.3.2.2 Alternative 2 – Pavement Reallocation

This alternative represents modifications to the roadway within the existing pavement. Some site specific construction may be necessary at certain intersections and where bus pull-off areas are located. The proposed section includes one travel lane in each direction with either a continuous two-way left-turn lane or dedicated left-turn lanes at intersections. This alternative retains the existing pavement width to the greatest extent practicable, reallocating it for use as on-street parking and/or an on-street bicycle lane. The Pavement Reallocation Alternative includes the features and/or concepts for various segments identified in Table 10.

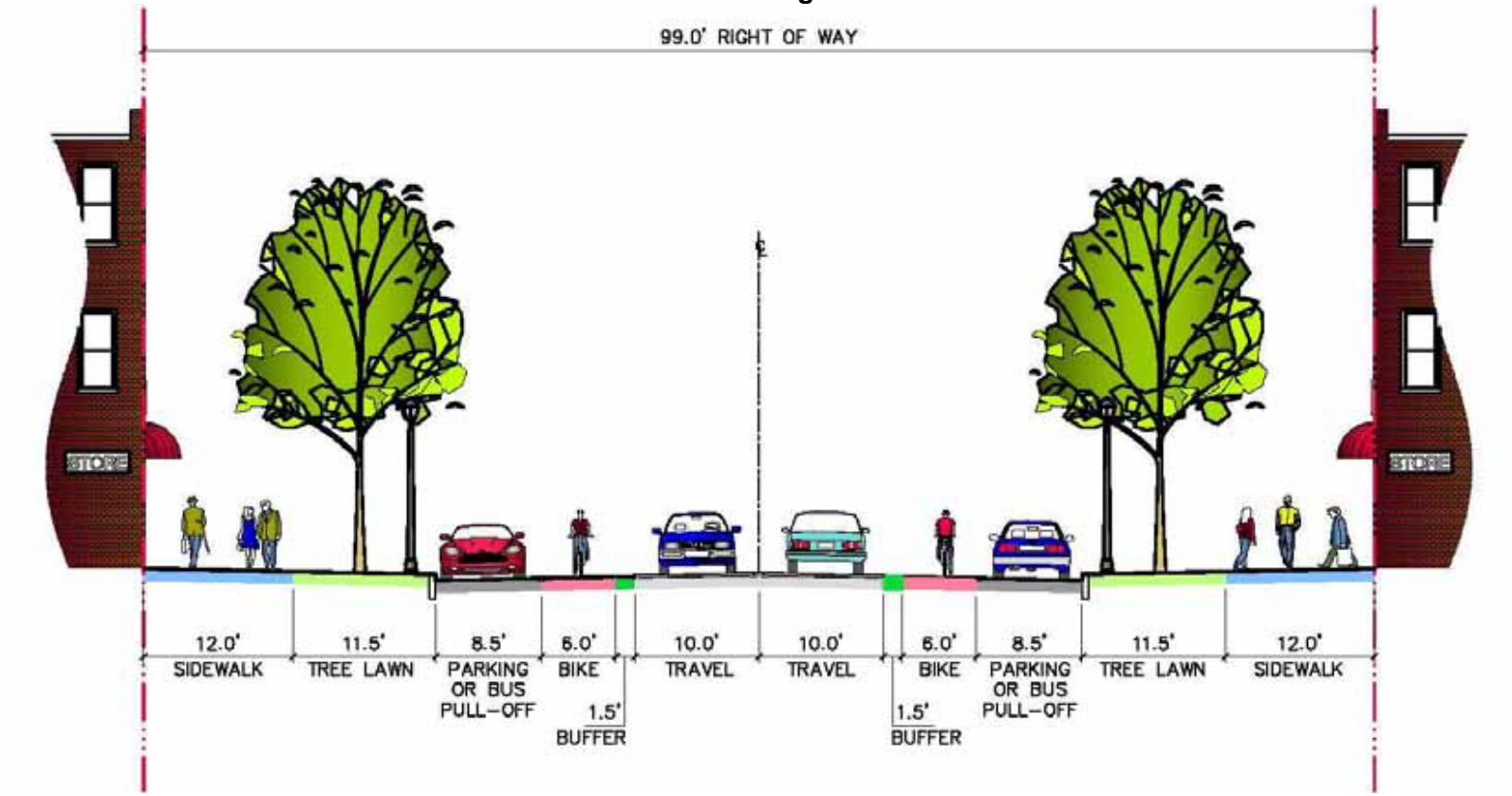
Table 10: Alternative 2 (Pavement Reallocation) Details of Segments

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Core	**A** **Oswego Blvd. to N. State St.**	46’	• Four travel lanes. • Left-turn lanes at N. State Street. • Westbound righ-t turn lane to N. State Street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide area for off-street bicycle usage.	• Enhance western “gateway”.
	B **N. State St. to N. Townsend St.**	52’	• Two travel lanes. • On-street parking areas on both sides of the street.	• Buses use existing travel lanes. • On-street parking is removed to allow for bus stops. • Additional bus pull-off area provided where necessary.	• Widen sidewalks for retail/ commercial use. • Two on-street bicycle lanes.	• Preferable to eliminate mid-block curb cuts.
	C **(Option 1)** **N. Townsend St. to Lodi St.**	40’-42’	• Two travel lanes. • One two-way left-turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off area at bus stops.	• Widen sidewalks for retail/ commercial use. • Two on-street bicycle lanes.	

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
	C (Option 2) N. Townsend St. to Lodi St.	40'-42'	• Two travel lanes. • On-street parking area on one side of the street.	• Buses use existing travel lanes. • On-street parking is removed at bus stops on one side of the street to allow for bus stops. • Additional bus pull-off area provided where necessary. • Provide full bus pull-off areas at bus stops where on-street parking does not exist.	• Widen sidewalks for retail/ commercial use. • Two on-street bicycle lanes.	• Preferable to eliminate mid-block curb cuts.
Urban Multiple Use	**D (Option 1) Lodi St. to Sedgwick St.**	40'-42'	• Two travel lanes. • One two-way left-turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off areas.	• Two on-street bicycle lanes.	
	D (Option 2) Lodi St. to Sedgwick St.	40'-42'	• Two travel lanes. • One two-way left-turn lane. • On-street parking area on one side of the street.	• Buses use existing travel lanes. • On-street parking is removed to allow for bus stops.	• Off-street multi-use path on both sides of the street.	
Urban Residential	**E Sedgwick St. to Shotwell Park**	40'-42'	• Two travel lanes. • One two-way lef-t turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off areas.	• Two on-street bicycle lanes.	• Maintains dedicated left-turn lanes at Teall Ave. • Provide eastbound right-turn lane at Teall Ave.

Alternative 2 – Pavement Reallocation

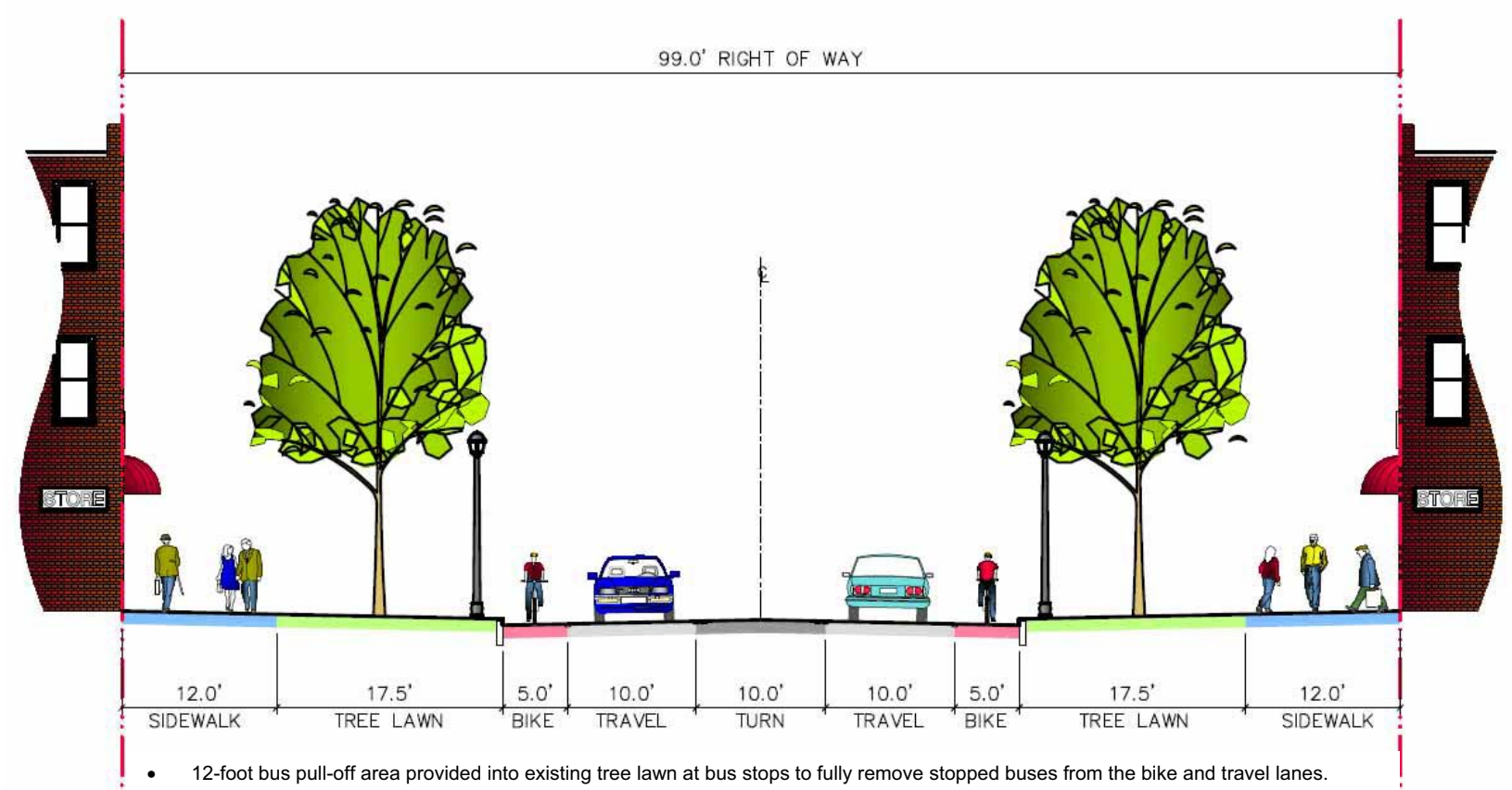
Urban Core Segment B



- On-street parking is removed at bus stops to allow buses to queue outside of the travel lane. Additional bus pull-off area is extended into existing tree lawn where necessary to fully remove buses from the bike and travel lanes.
- This alternative is most effective when mid-block curb cuts are eliminated and alternative access is provided through side streets and/or alleys.

Alternative 2 – Pavement Reallocation

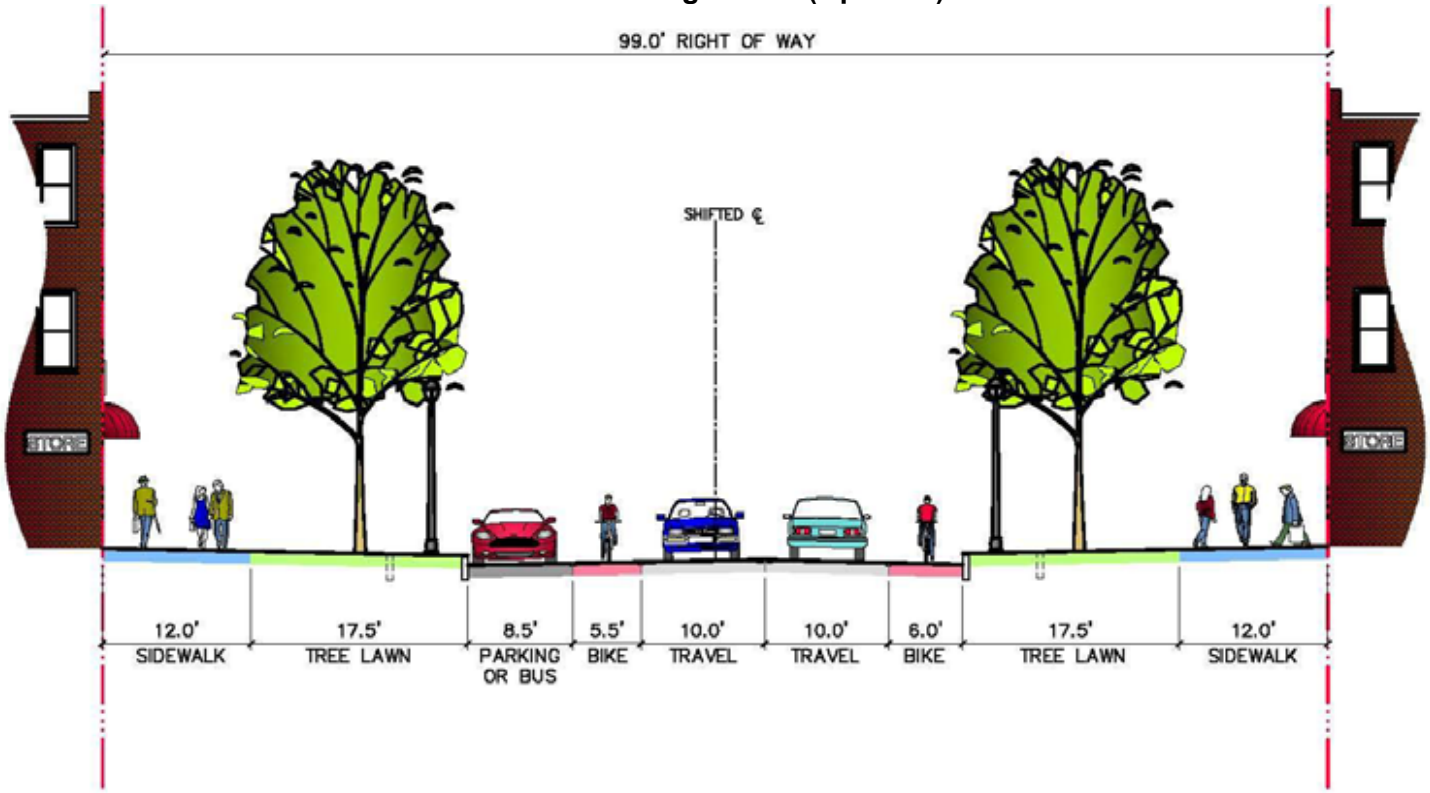
Urban Core Segment C (Option 1)



- 12-foot bus pull-off area provided into existing tree lawn at bus stops to fully remove stopped buses from the bike and travel lanes.

Alternative 2 – Pavement Reallocation

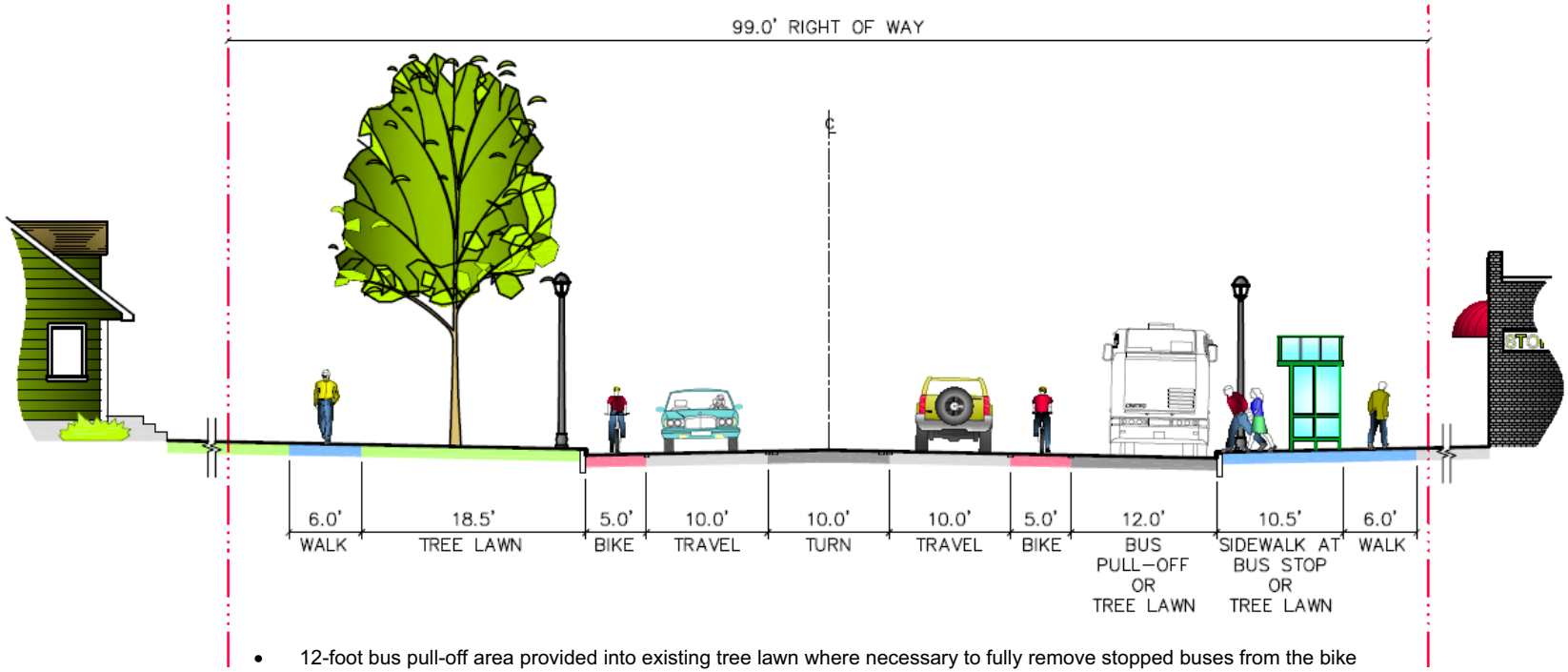
Urban Core Segment C (Option 2)



- On-street parking is removed at bus stops to allow buses to queue outside of the travel lane. Additional bus pull-off area is extended into existing tree lawn where necessary to fully remove buses from the bike and travel lanes.
- This alternative is most effective when mid-block curb cuts are eliminated and alternative access is provided through side streets and/or alleys.

Alternative 2 – Pavement Reallocation

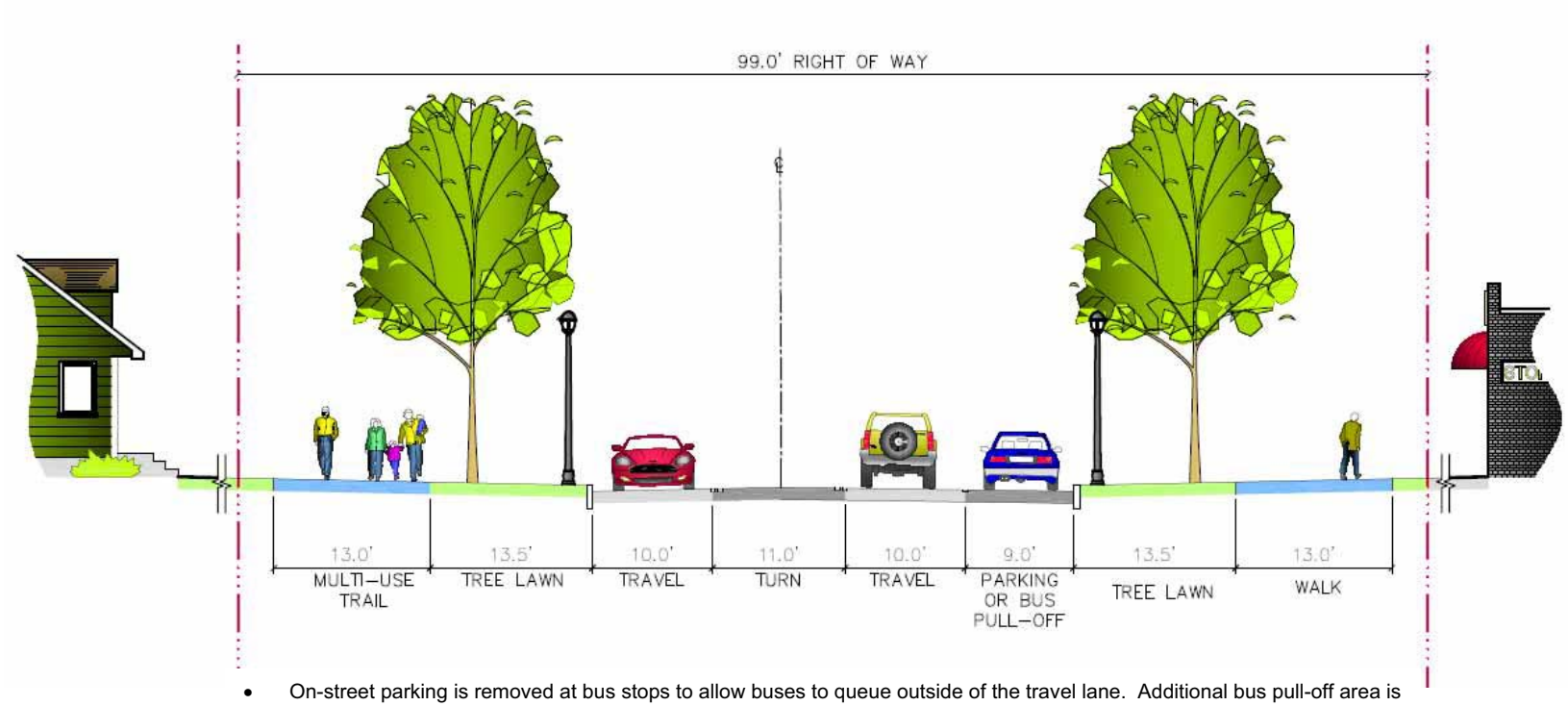
Urban Multiple Use Segment D (Option 1)



- 12-foot bus pull-off area provided into existing tree lawn where necessary to fully remove stopped buses from the bike and travel lanes.

Alternative 2 – Pavement Reallocation

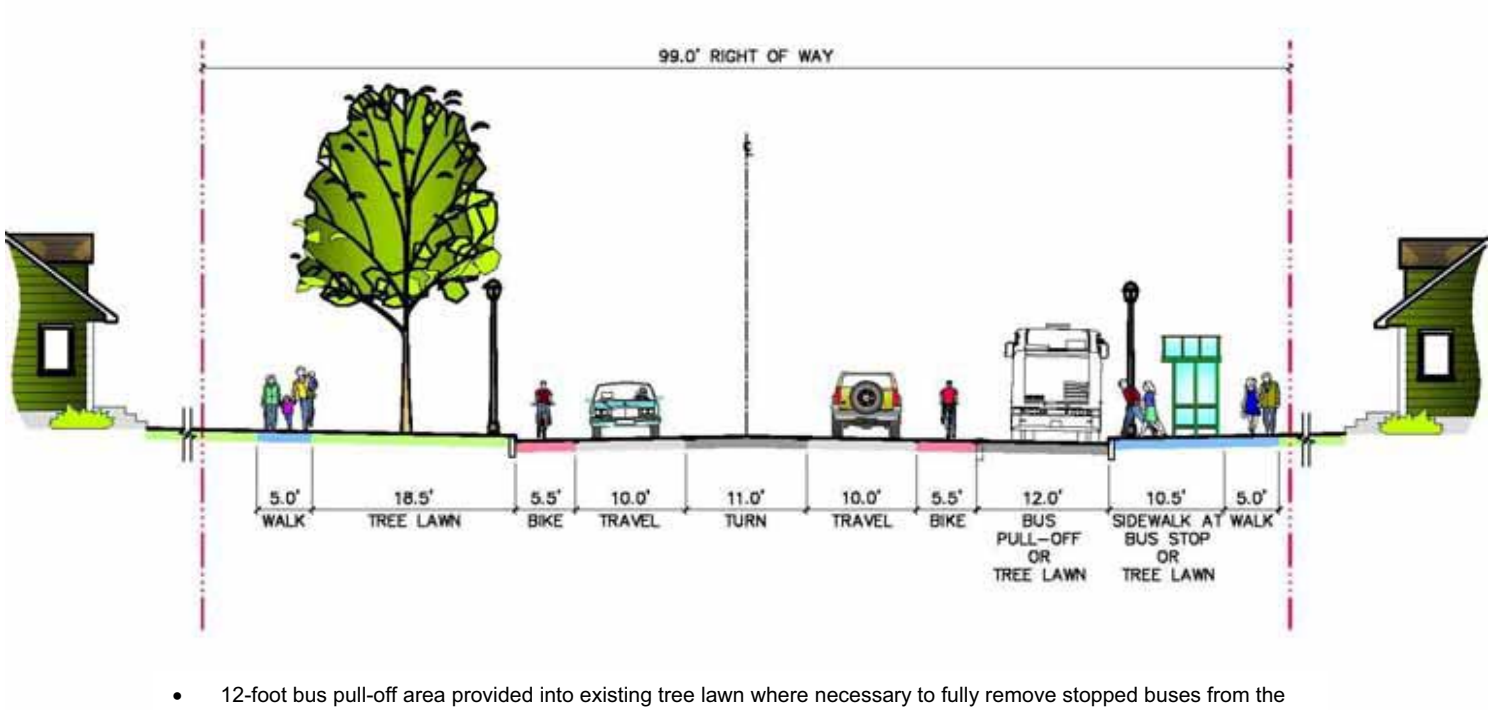
Urban Multiple Use Segment D (Option 2)



- On-street parking is removed at bus stops to allow buses to queue outside of the travel lane. Additional bus pull-off area is extended into existing tree lawn where necessary to fully remove buses from the bike and travel lanes.
- Where no bus pull-off needs to exist, the multi-use trail is pulled in from the right-of-way line as much as possible to maximize the greenspace allocated for adjacent front lawns.

Alternative 2 – Pavement Reallocation

Urban Residential Segment E



- 12-foot bus pull-off area provided into existing tree lawn where necessary to fully remove stopped buses from the bike and travel lanes.

7.3.2.3 Alternative 3: Enhanced Transit

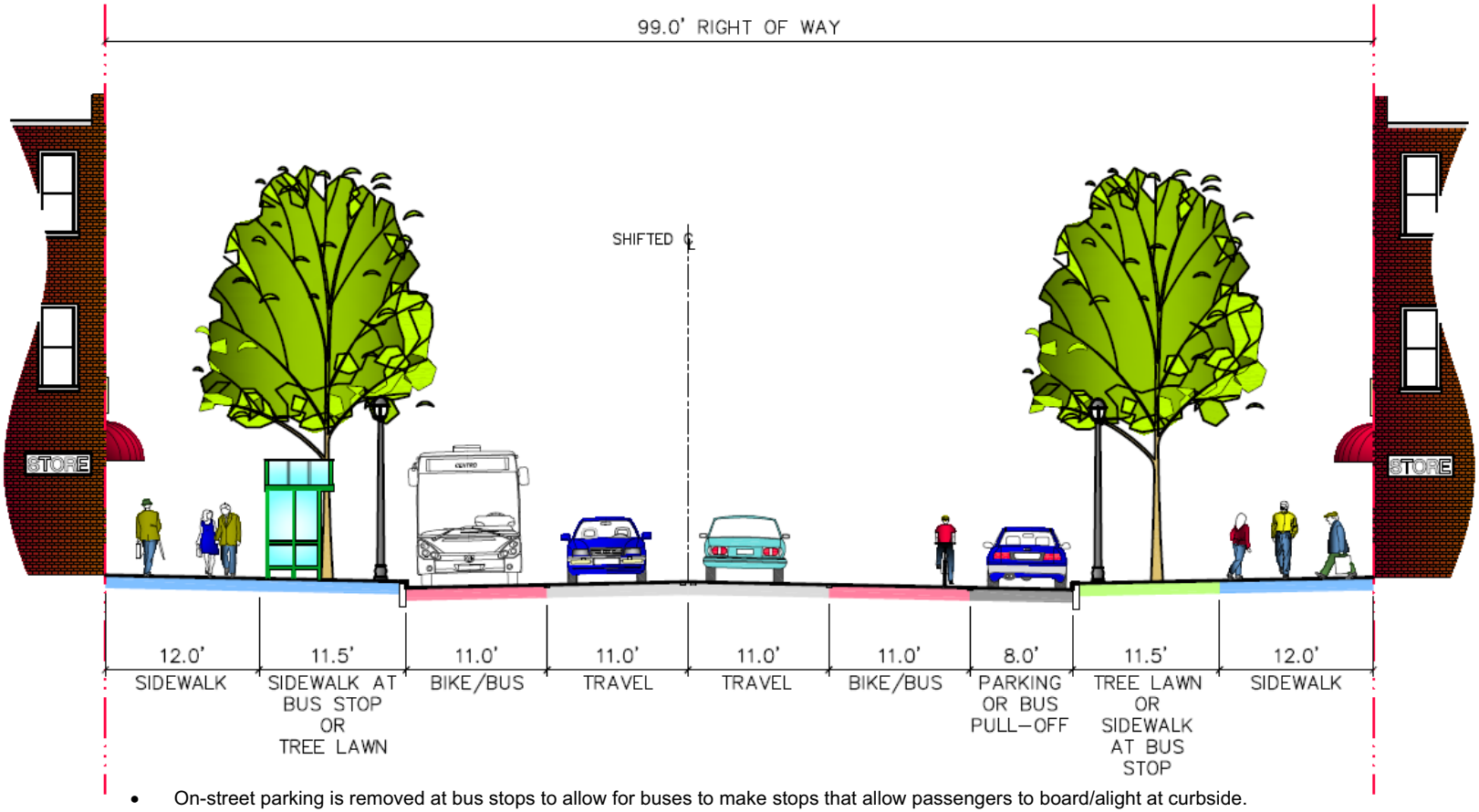
This alternative reallocates the existing pavement width. The existing inside travel lane in each direction is dedicated for vehicular traffic. The existing outside travel lane in each direction is allocated for use solely by transit vehicles and bicycles. This alternative allows for enhanced transit service along James Street while still providing on-street bicycle facilities. Approaches at signalized intersections would need to be widened in order to accommodate dedicated left-turn lanes. To avoid right-turning vehicles making dangerous turns across the outside lane and conflicting with buses and/or bicyclists traveling within the outside lane, the outside lane would be used for vehicles making right turns at intersections. The Enhanced Transit Alternative includes the features and/or concepts for various segments outlined in Table 11.

Table 11: Alternative 3 (Enhanced Transit) Details of Segments

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Core	**A** **Oswego Blvd. to N. State St.**	46’	• Four travel lanes. • Left-turn lanes at N. State Street. • Westbound right-turn lane to N. State Street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide area for off-street bicycle usage.	• Enhance western “gateway”.
	B **N. State St. to N. Townsend St.**	52’	• Two outside dedicated bus/ bicycle lanes. • Two inside travel lanes. • On-street parking area on one side of the street.	• Buses use dedicated outside travel lane. • Buses make stops in outside travel lane. • On-street parking is removed to allow for bus stops.	• Widen sidewalks for retail/ commercial use. • Bicycles use shared bus/ bicycle lane.	• Preferable to eliminate mid-block curb cuts.
	C **N. Townsend St. to Lodi St.**	40’-42’	• Two outside dedicated bus/ bicycle lanes. • Two inside travel lanes.	• Buses use dedicated outside travel lane. • Buses make stops in outside travel lane.	• Widen sidewalks for retail/ commercial use. • Bicycles use shared bus/ bicycle lane.	• Preferable to eliminate mid-block curb cuts.
Urban Multiple Use	**D** **Lodi St. to Sedgwick St.**	40’-42’	• Two outside dedicated bus/ bicycle lanes. • Two inside travel lanes.	• Buses use dedicated outside travel lane. • Buses make stops in outside travel lane.	• Bicycles use shared bus/ bicycle lane.	
Urban Residential	**E** **Sedgwick St. to Shotwell Park**	40’-42’	• Two outside dedicated bus/ bicycle lanes. • Two inside travel lanes.	• Buses use dedicated outside travel lane. • Buses make stops in outside travel lane.	• Bicycles use shared bus/ bicycle lane.	• Maintains dedicated left-turn lanes at Teall Ave. • Provide eastbound right-turn lane at Teall Ave.

Alternative 3 – Enhanced Transit

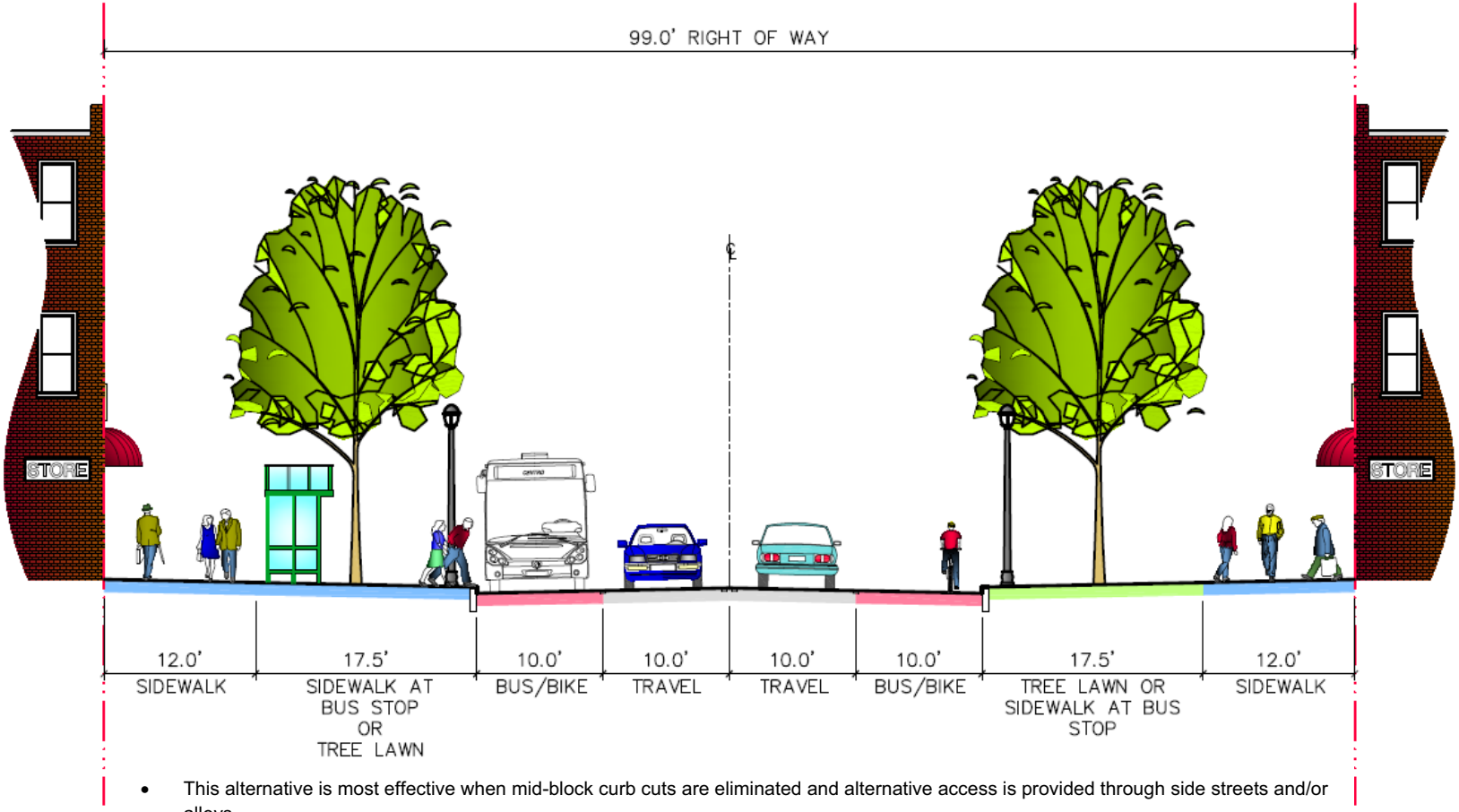
Urban Core Segment B



- On-street parking is removed at bus stops to allow for buses to make stops that allow passengers to board/alight at curbside.
- This alternative is most effective when mid-block curb cuts are eliminated and alternative access is provided through side streets and/or alleys.

Alternative 3 – Enhanced Transit

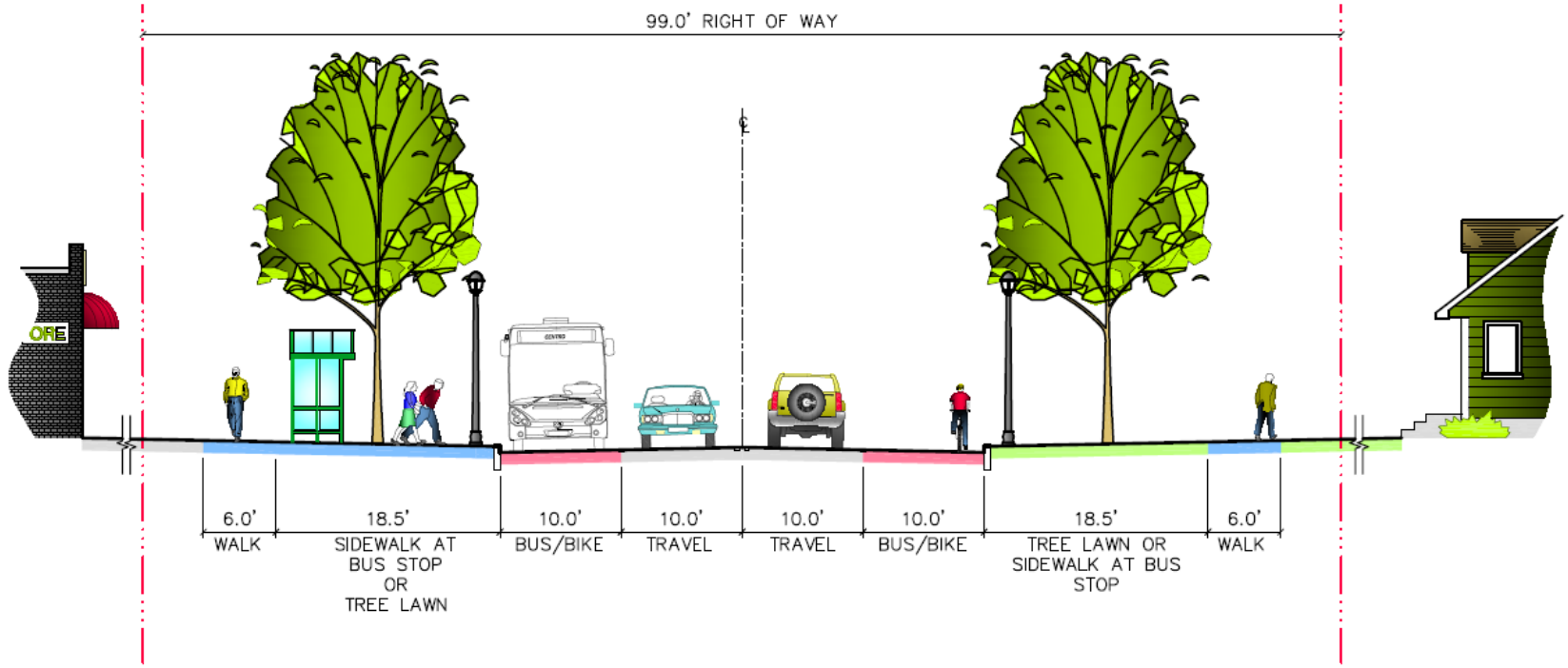
Urban Core Segment C



- This alternative is most effective when mid-block curb cuts are eliminated and alternative access is provided through side streets and/or alleys.

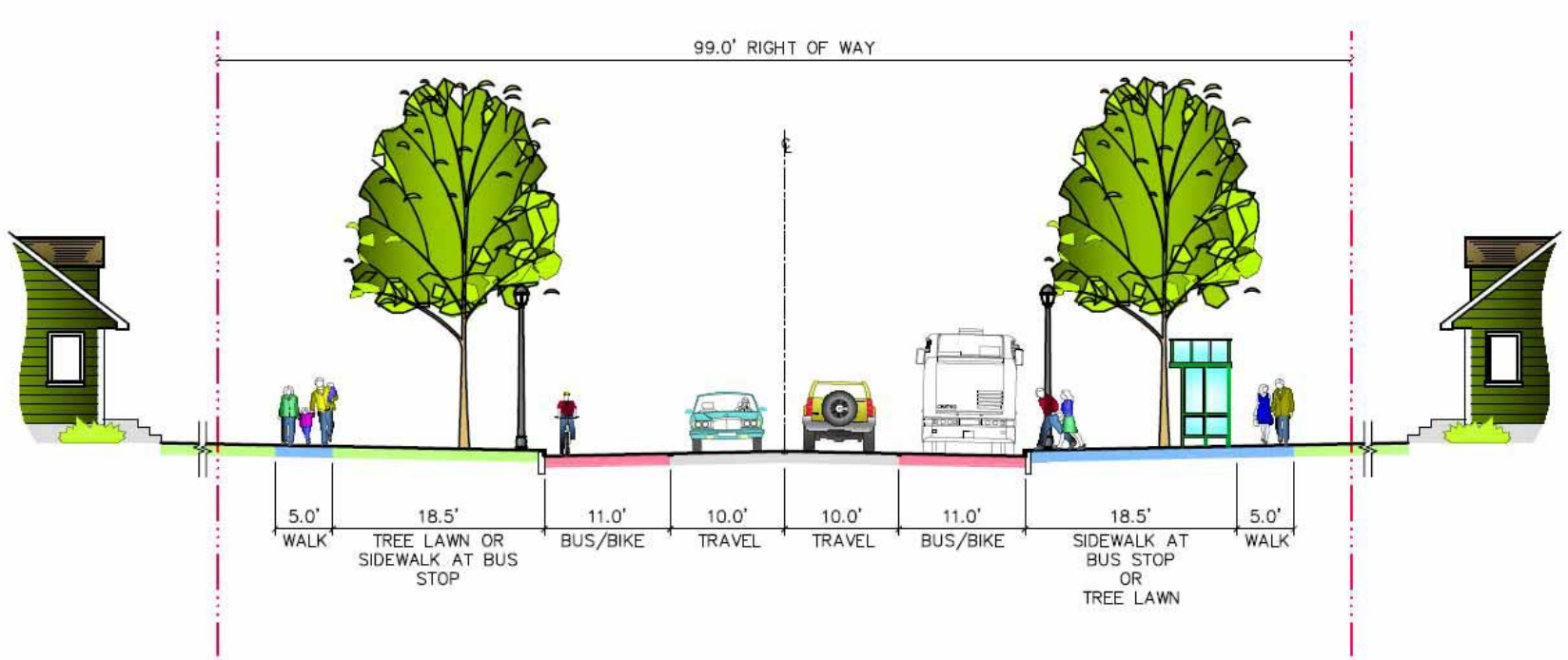
Alternative 3 – Enhanced Transit

Urban Multiple Use Segment D



Alternative 3 – Enhanced Transit

Urban Residential Segment E



7.3.2.4 Alternative 4: Roadway Reconstruction

This alternative proposes reconstruction to the entire corridor in the form of pavement widening or narrowing, construction of off-street multi-use paths, and other modifications. This alternative proposes converting the existing four-lane section to a three-lane section (or a shared car/bike lane section between Teall Ave. and Shotwell Park). In some areas, the roadway reconstruction will widen portions of the roadway to allow for alternative transportation modes or on-street parking. In other areas, roadway reconstruction may reduce the pavement footprint and reallocate abandoned pavement to tree lawn. This alternative would provide an off-street multi-use path along portions of the corridor and introduces green stormwater drainage options. This alternative would also have the greatest potential to reduce the footprint of the impervious pavement and associated stormwater runoff. The Roadway Reconstruction Alternative includes the features and/or concepts for various segments outlined in Table 12.

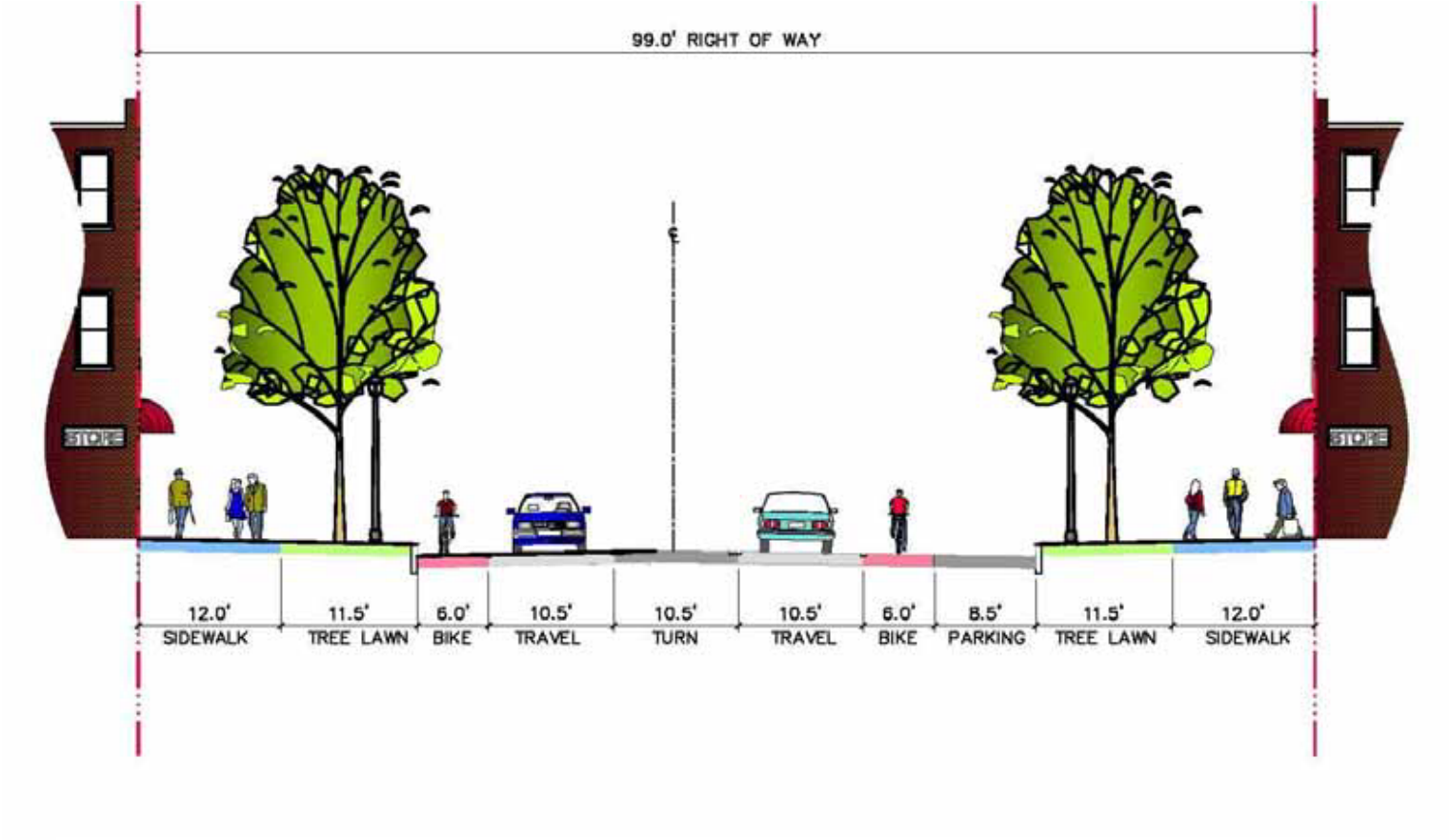
Table 12: Alternative 4 (Roadway Reconstruction) Details of Segments

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Core	**A** **Oswego Blvd. to N. State St.**	46’	• Four travel lanes. • Left-turn lanes at N. State Street. • Westbound right-turn lane to N. State Street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide area for off-street bicycle usage.	• Enhance western “gateway”.
	B & C **(Option 1)** **N. State St. to Lodi St.**	52’	• Two travel lanes. • One two-way left-turn lane. • On-street parking area on one side of the street.	• Buses use existing travel lanes. • On-street parking is removed at bus stops on one side of the street to allow for bus stops. • Additional bus pull-off area provided where necessary. • Bus pull-off area where on-street parking does not exist.	• Widen sidewalks for retail/ commercial use. • Two on-street bicycle lanes.	
	B & C **(Option 2)** **N. State St. to Lodi St.**	52’	• Two travel lanes. • On-street parking area on both sides of the street.	• Buses use existing travel lanes. • On-street parking is removed to allow for bus stops. • Additional bus pull-off area provided where necessary.	• Widen sidewalks for retail/ commercial use. • Two on-street bicycle lanes.	• Preferable to eliminate mid-block curb cuts.

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Multiple Use	**D** **Lodi St. to Sedgwick St.**	34' (reduced from 40' and 42')	• Two travel lanes. • One two-way left turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off areas at bus stops.	• Off-street multi-use path on both sides of the street.	
Urban Residential	**E** **(Option 1)** **Sedgwick St. to Shotwell Park**	34' (reduced from 40' at 42')	• Two travel lanes. • One two-way left-turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off areas at bus stops.	• Off-street multi-use path on both sides of the street.	• Maintains dedicated left-turn lanes at Teall Ave. • Provide eastbound right-turn lane at Teall Ave. • Green stormwater management.
	E **(Option 2)** **Sedgwick St. to Shotwell Park**	38' (reduced from 40' and 42')	• Two shared vehicle/ bicycle lanes. • One two-way left-turn lane.	• Buses use existing travel lanes. • Provide full bus pull-off areas at bus stops.	• Bicycles used shared travel lane.	• Maintains dedicated left-turn lanes at Teall Ave. • Provide eastbound right-turn lane at Teall Ave.

Alternative 4 – Roadway Reconstruction

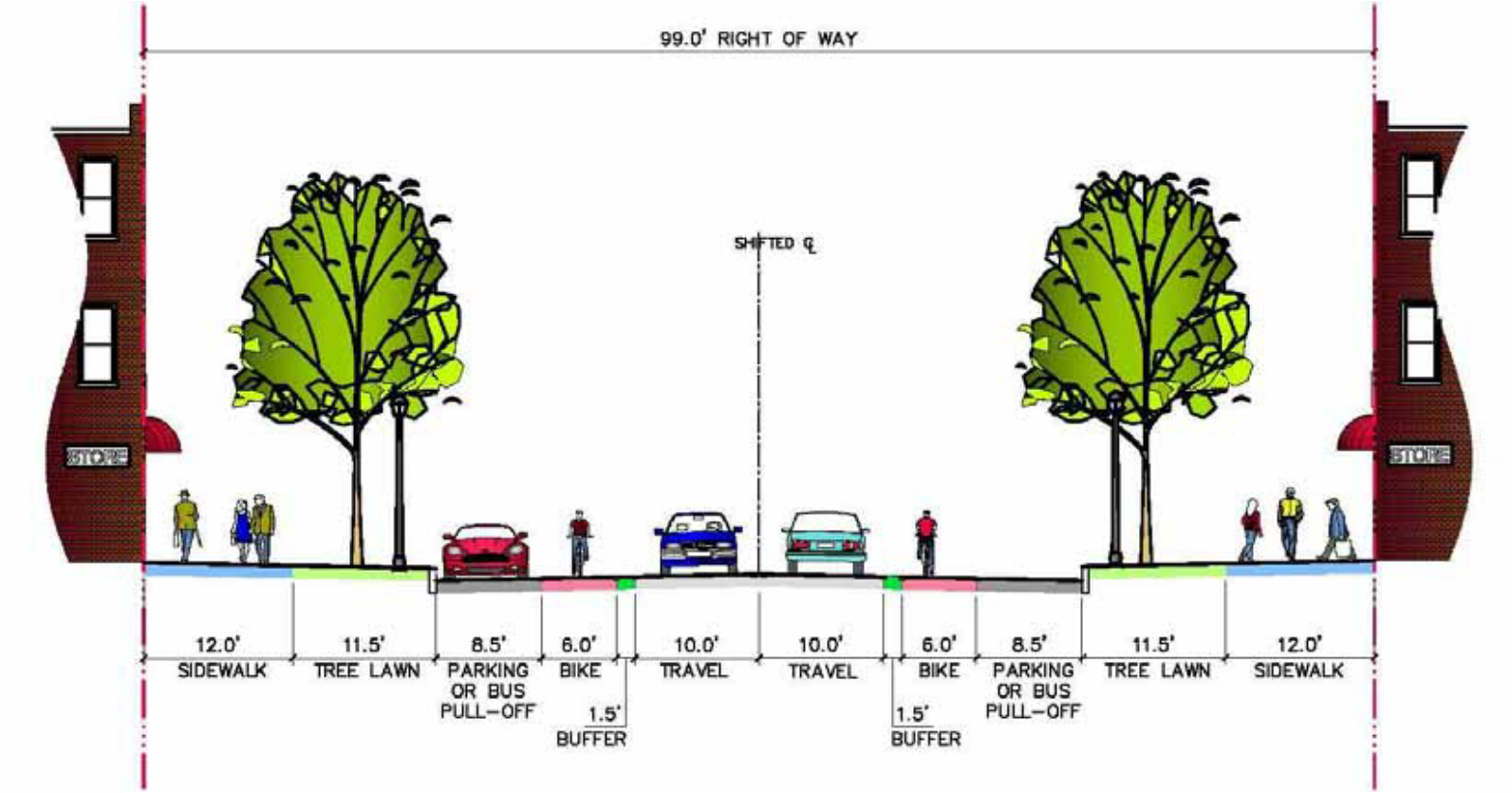
Urban Core Segments B & C (Option 1)



- On-street parking is removed at bus stops to allow buses to queue outside of the travel lane. Additional bus pull-off area is extended into the existing tree lawn where necessary to fully remove buses from the bike and travel lanes.

Alternative 4 – Roadway Reconstruction

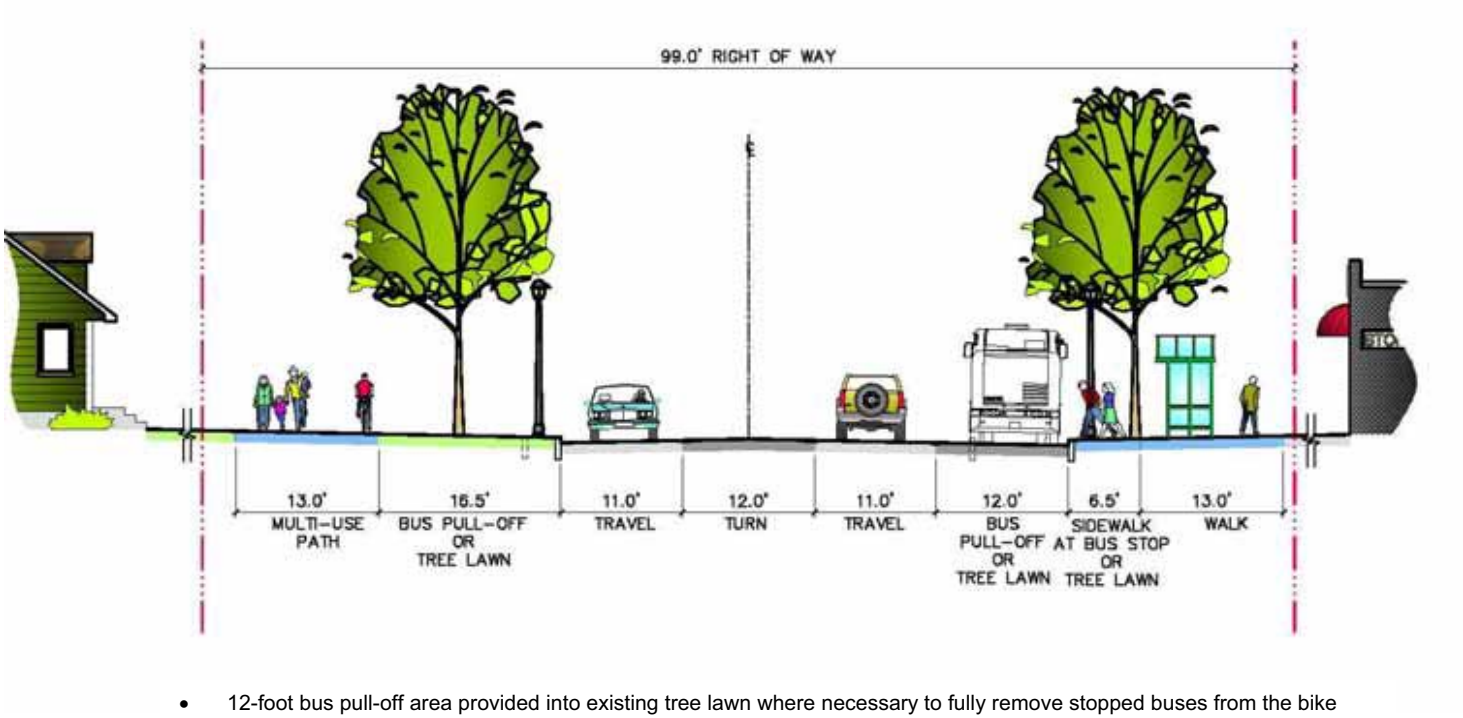
Urban Core Segments B & C (Option 2)



- On-street parking is removed at bus stops to allow buses to queue outside of the travel lane. Additional bus pull-off area is extended into the existing tree lawn where necessary to fully remove buses from the bike and travel lanes.
- This alternative is most effective when mid-block curb cuts are eliminated and alternative access is provided through side streets and/or alleys.

Alternative 4 – Roadway Reconstruction

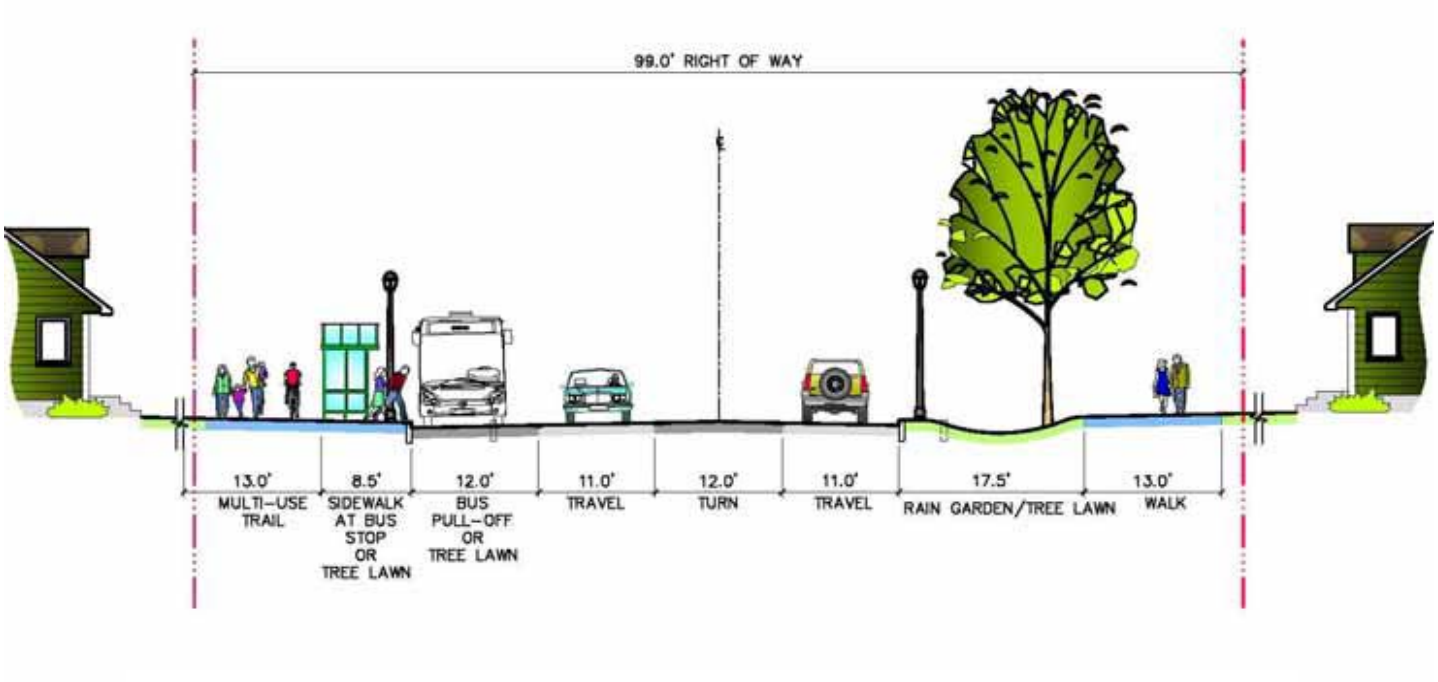
Urban Multiple Use Segment D



- 12-foot bus pull-off area provided into existing tree lawn where necessary to fully remove stopped buses from the bike and travel lanes.
- Where no bus pull-off needs to exist, the multi-use trail is pulled in from the right-of-way line as much as possible to maximize the greenspace allocated for adjacent front lawns.

Alternative 4 – Roadway Reconstruction

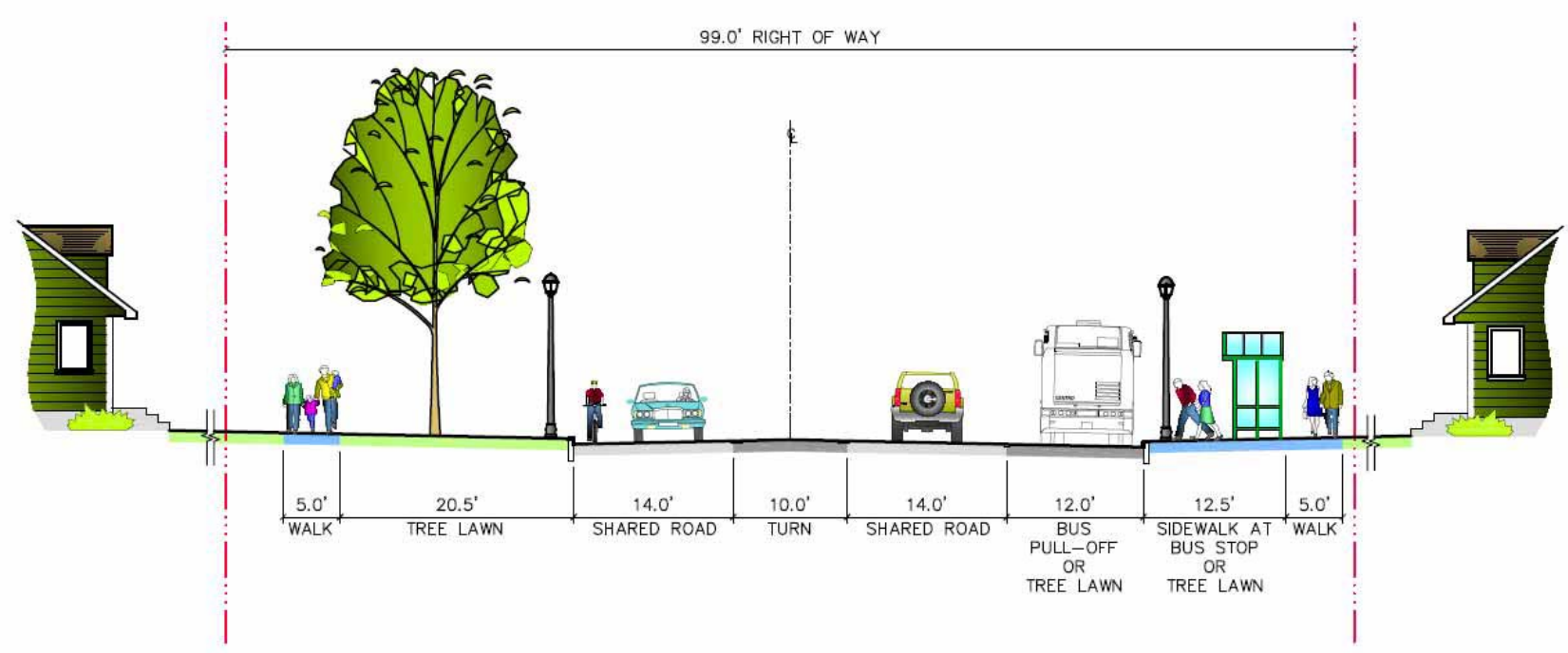
Urban Residential Segment E (Option 1)



- 12-foot bus pull-off area provided into existing tree lawn where necessary to fully remove stopped buses from the bike and travel lanes.
- Where no bus pull-off needs to exist, the multi-use trail is pulled in from the right-of-way line as much as possible to maximize the greenspace allocated for adjacent front lawns.

Alternative 4 – Roadway Reconstruction

Urban Residential Segment E (Option 2)



- 12-foot bus pull-off area provided into existing tree lawn where necessary to fully remove stopped buses from the bike and travel lanes.

7.3.2.5 Alternative 5: Traffic Signal Coordination without Road Diet Element

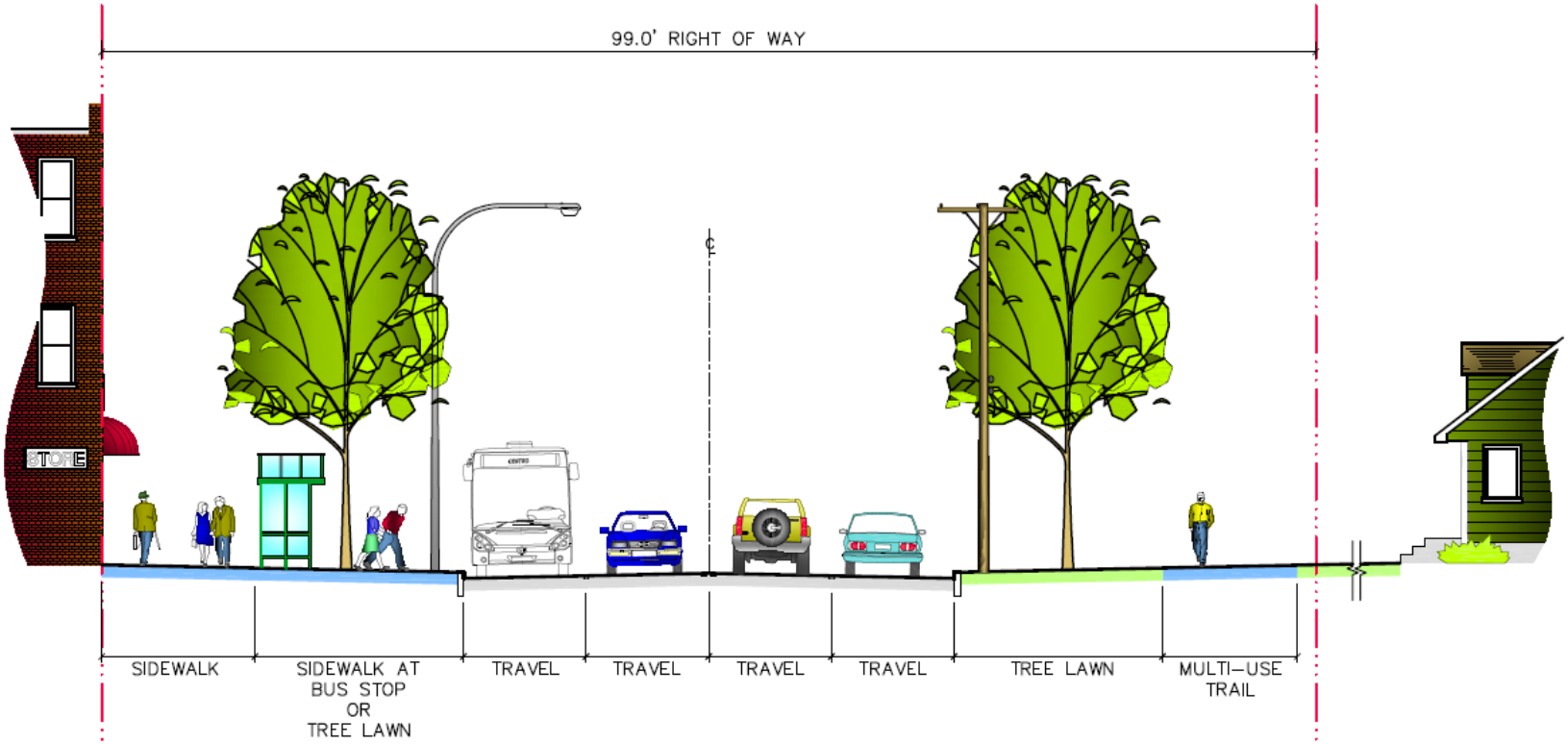
This alternative proposes no changes to the physical layout of the roadway, but proposes optimizing and coordinating traffic signals along the corridor to reduce delay. Dedicated left-turn lanes are provided at all signalized intersections. Buses would continue to makes stops within the outside travel lane. A multi-use path is provided on one side of the road to enhance pedestrian and bicycle transportation. No other improvements are proposed under this alternative. Features of each segment are outlined in Table 13.

Table 13: Alternative 5 (Traffic Signal Coordination without Road Diet Element) Details of Segments

	Segment	Pavement Width	Pavement Allocation	Transit Considerations	Pedestrian/Bicycle Considerations	Other Considerations
Urban Core	**A** **Oswego Blvd. to N. State St.**	46’	• Four travel lanes. • Left-turn lanes at N. State Street. • Westbound right-turn lane to N. State Street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Pedestrians use existing sidewalk. • Bicyclists share outside travel lane with vehicles.	• Implement corridor-wide traffic signal coordination.
	B **N. State St. to N. Townsend St.**	52’	• Four travel lanes. • On-street parking area on one side of the street.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide off-street multi-use path on one side of the street.	• Implement corridor-wide traffic signal coordination.
	C **N. Townsend St. to Lodi St.**	40’-42’	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide off-street multi-use path on one side of the street.	• Implement corridor-wide traffic signal coordination.
Urban Multiple Use	**D** **Lodi St. to Sedgwick St.**	40’-42’	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide off-street multi-use path on one side of the street.	• Implement corridor-wide traffic signal coordination.
Urban Residential	**E** **Sedgwick St. to Shotwell Park**	40’-42’	• Four travel lanes.	• Buses use existing travel lanes. • Buses make stops in outside travel lane.	• Provide off-street multi-use path on one side of the street.	• Maintains dedicated left-turn lanes at Teall Ave. • Implement corridor-wide traffic signal coordination.

Alternative 5 – Traffic Signal Coordination without Road Diet Element

All Segments



- Dedicated left-turn lanes provided at all signalized intersections.
- Traffic signal coordination implemented.
- Where no bus pull-off needs to exist, the multi-use trail is pulled in from the right-of-way line as much as possible to maximize the greenspace allocated for adjacent front lawns.

Table 14: Summary of Roadway Alternative Segments

<table>
<tr><th></th><th>Segment</th><th colspan="4">Alternatives</th></tr>
<tr><th></th><th></th><th>Alternative 1 – No Build</th><th>Alternative 2 – Pavement Reallocation</th><th>Alternative 3 – Enhanced Transit</th><th>Alternative 4 – Roadway Reconstruction</th><th>Alternative 5 – Traffic Signal Coordination</th></tr>
<tr><td rowspan="4">Urban Core</td><td>A</td><td rowspan="4">Maintains roadway as is:
• 4 travel lanes.
• Maintain existing turn lanes.
• Buses make stops in outside travel lane.
• Maintain existing traffic signal timing.
• Pedestrians use existing sidewalks.
• Bicyclists share outside travel lane.</td><td colspan="3">• 4 travel lanes.
• Off-street bicycle facilities.
• Left-turn lanes at N. State Street.
• Westbound right-turn lane to N. State Street.
• Buses use existing travel lanes and make stops in outside travel lane.
• Enhance “Western Gateway”</td><td rowspan="4">• Maintains 4 travel lanes.
• Provides turn lanes at all signalized intersections.
• Off-street multi-use path.
• Implement traffic signal coordination.</td></tr>
<tr><td>B (Option 1)</td><td>• 2 travel lanes.
• On-street parking on both sides of the street.
• Provide bus pull-off areas.
• On-street bicycle lanes.
• Widen sidewalks.
• Preferable to eliminate mid-block curb cuts.</td><td>• 2 outside dedicated bus/bicycle lanes.
• 2 inside travel lanes.
• On-street parking on one side of the street.
• Buses stop in outside travel lane.
• Widen sidewalks.
• Preferable to eliminate mid-block curb cuts.</td><td>• 2 travel lanes.
• Two-way left-turn lane.
• On-street parking on one side of the street.
• Provide bus pull-off areas.
• On-street bicycle lanes.
• Widen sidewalks.</td></tr>
<tr><td>B (Option 2)</td><td>NA</td><td>NA</td><td>• 2 travel lanes.
• On-street parking on both sides of the street.
• Provide bus pull-off areas.
• On-street bicycle lanes.
• Widen sidewalks.
• Preferable to eliminate mid-block curb cuts.</td></tr>
<tr><td>C (Option 1</td><td>• 2 travel lanes.
• Two-way left-turn lane.
• Provide bus pull-off areas.
• On-street bicycle lanes.
• Widen sidewalks.</td><td>• 2 outside dedicated bus/bicycle lanes.
• 2 inside travel lanes.
• Buses stop in outside travel lane.
• Widen sidewalks.
• Preferable to eliminate mid-block curb cuts.</td><td>• 2 travel lanes.
• Two-way left-turn lane.
• On-street parking on one side of the street.
• Provide bus pull-off areas.
• On-street bicycle lanes.
• Widen sidewalks.</td></tr>
</table>

	Segment	Alternatives				
		Alternative 1 – No Build	Alternative 2 – Pavement Reallocation	Alternative 3 – Enhanced Transit	Alternative 4 – Roadway Reconstruction	Alternative 5 – Traffic Signal Coordination
Urban Core	C (Option 2)		• 2 travel lanes. • On-street parking on one side of the street. • Provide bus pull-off areas. • On-street bicycle lanes. • Widen sidewalks. • Preferable to eliminate mid-block curb cuts.	NA	• 2 travel lanes. • On-street parking on both sides of the street. • Provide bus pull-off areas. • On-street bicycle lanes. • Widen sidewalks. • Preferable to eliminate mid-block curb cuts.	
Urban Multiple Use	D (Option 1)		• 2 travel lanes. • Two-way left-turn lane. • Provide bus pull-off areas. • On-street bicycle lanes.	• 2 outside dedicated bus/bicycle lanes. • 2 inside travel lanes. • Buses stop in outside travel lane.	• 2 travel lanes. • Two-way left-turn lane. • Provide bus pull-off areas. • Off-street multi-use path.	
	D (Option 2)		• 2 travel lanes. • Two-way left-turn lane. • On-street parking on one side of the street. • Provide bus pull-off areas. • Off-street multi-use path.	NA	NA	
Urban Residential	E (Option 1)		• 2 travel lanes. • Two-way left-turn lane. • Provide bus pull-off areas. • On-street bicycle lanes. • Provide eastbound right-turn lane to Teall Ave.	• 2 outside dedicated bus/bicycle lanes. • 2 inside travel lanes. • Buses stop in outside travel lane. • Provide eastbound right-turn lane to Teall Ave.	• 2 travel lanes. • Two-way left-turn lane. • Provide bus pull-off areas. • Off-street multi-use path. • Provide eastbound right-turn lane to Teall Ave. • Green stormwater management.	
	E (Option 2)		NA	NA	• 2 shared travel/bicycle lanes. • Two-way left-turn lane. • Provide bus pull-off areas. • Provide eastbound right-turn lane to Teall Ave.	

8.0 Traffic Operational Analysis for Alternatives

8.1 2030 Future Traffic Volumes

Historical traffic volumes for the James Street corridor between Route 11 (Downtown) and Eastwood were obtained from the SMTC as well as from the NYSDOT Traffic Data Report to identify an appropriate long term growth rate for projecting the 2030 future traffic volumes. Based on the data reviewed, the average annual daily traffic volume on James Street has grown from approximately 15,150 vehicles per day in 1991 to approximately 17,200 vehicles per day in 2008. This equates to an average annual linear growth in traffic of approximately 0.8% per year over the past 17 years. In order to maintain a conservative estimate of future traffic volumes in the corridor for this road diet study, a linear growth rate of 1% per year was used.

Based on this information and discussions with SMTC, the 2009 traffic volumes were grown by 20% using a 1% annual linear growth rate to determine the 2030 future traffic volumes in the study area. The traffic volumes for the northbound and southbound movements of North Townsend Street and North State Street were grown annually by 2% to account for known future development in the Downtown and Prospect Hill areas. Under a “worst case” growth scenario, these annual growth rates allow for a more accurate prediction of corridor functionality. Therefore, they are considered conservative (i.e., reflects a high increase in traffic growth) especially in light of the City’s vision to reduce (not increase) vehicle miles traveled as part of its long-term sustainability goals.

In addition, pedestrian and bicycle volumes were grown annually by 1%. Traffic volumes were input into Synchro and two separate operational analyses were conducted to evaluate Level of Service in the corridor for the 2030 design year (Appendix D: Traffic Analysis Results).

8.1.1 2030 Null Analysis

The null analysis provides an evaluation of traffic operations in the 2030 design year under the assumption that no changes are made to the number and/or configuration of travel lanes and that no changes are made to signal timings or operation. Under the 2030 null conditions, James Street experiences 400-850 vehicles in either direction during the peak hours and experiences no significant overall degradation in operation.

In general, overall LOS for through movements on James Street is generally maintained from the 2009 existing condition to the 2030 null condition. The James Street/Oswego Boulevard intersection will further degrade toward borderline LOS D/E during the evening peak hour with failing northbound movements worsening. The northbound Townsend Avenue left-turn movement will begin to show failing LOS during the evening peak hour. The northbound Catherine Avenue approach will degrade from LOS E to LOS F during the evening peak hour. Several Teall Avenue approaches will begin to operate at LOS E during the evening peak hour. The James Street/Shotwell Park/Grant Avenue intersection will further degrade during both the morning and evening peak hours.

8.2 Arterial and Network Analysis Results

Traffic simulations were conducted to analyze traffic operations of the James Street corridor for each of the roadway alternatives. Simulations were conducted using Synchro7 capacity analysis software. This simulation was used to develop operational LOS as well as arterial and network measures of effectiveness (MOE) for use in comparing the five study alternatives. These MOE have been summarized for the morning (7:00-9:00 A.M.) and evening peak hours (4:00-6:00 P.M.) only.

Section 5 summarized current operational LOS for the corridor. The MOE for both the A.M. and P.M. peak hour are summarized in Tables 15 and 16 below.

Table 15: Arterial and Network Measures of Effectiveness – A.M. Peak Hour

Measure of Effectiveness	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
Arterial			
Travel Time EB (sec)	394.3	401.9 (+7.6)	416.2 (+21.9)
Travel Time WB (sec)	385.5	369.2 (-16.3)	348.6 (-36.9)
Signal Delay EB (sec)	115.4	121.3 (+5.9)	137.3 (+21.9)
Signal Delay WB (sec)	111.6	95.3 (-16.3)	74.7 (-36.9)
Arterial Speed EB (mph)	19.4	19.2 (-0.2)	18.4 (-1.0)
Arterial Speed WB (mph)	19.6	20.4 (+0.8)	21.7 (+1.2)
Network			
Total Delay (hrs)	151	111 (-40)	96 (-55)
Total Stops (#)	11,715	11,690 (-25)	10,505 (-1,210)
Fuel Consumption (gal)	321	292 (-29)	274 (-47)

Table 16: Arterial and Network Measures of Effectiveness – P.M. Peak Hour

Measure of Effectiveness	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
Arterial			
Travel Time EB (sec)	438.3	436.8 (-1.5)	412.6 (-25.7)
Travel Time WB (sec)	444.2	436.3 (-7.9)	406.9 (-37.3)
Signal Delay EB (sec)	159.4	156.3 (-3.1)	133.7 (-25.7)
Signal Delay WB (sec)	170.3	162.4 (-7.9)	133.0 (-27.3)
Arterial Speed EB (mph)	17.5	17.6 (+0.1)	18.6 (+1.1)
Arterial Speed WB (mph)	17.0	17.3 (+0.3)	18.6 (+1.6)
Network			
Total Delay (hrs)	275	194 (-81)	171 (-104)
Total Stops (#)	16,373	15,507 (-866)	14,499 (-1,874)
Fuel Consumption (gal)	460	397 (-63)	374 (-86)

Arterial Measures of Effectiveness*
Travel Time = Average total travel time per vehicle traveling through entire corridor.
Signal Delay = Average total signal delay per vehicle traveling through entire corridor.
Arterial Speed = Overall average speed for length of corridor including delay/stopped.

Network Measures of Effectiveness*
Total Delay = Total cumulative delay time for all traffic traveling within the corridor.
Total Stops = Total cumulative number of vehicle stops within the corridor.
Fuel Consumption = Total cumulative fuel consumed by all vehicles in corridor.

* All Measures of Effectiveness are for the morning or evening peak hours only.

The following provides a brief description of arterial and network MOE:

1. The *Arterial Travel Time* is a measure of the average total time it takes for a vehicle to travel from one end of the corridor to the other for each direction of travel and is measured in seconds. The total travel time includes both running time and the delay time when stopped at signals and is measured only for vehicles traveling east/west along James Street.
2. The *Arterial Signal Delay Time* is a measure of the average total cumulative delay time for all of the signals that would be encountered by a single vehicle traveling from one end of the corridor to the other for each direction of travel, and is measured in seconds.
3. The *Arterial Speed* is an overall average speed in each direction along the length of the corridor and is measured in miles per hour. This speed is based on the total time it takes the average vehicle to get from one end of the corridor to the other. It takes into account delay times when vehicles are stopped at signals. Since the 35 mph speed limit is not projected to change along James Street in any of the alternatives, the Arterial Speed will only change in conjunction with the level of delays occurring along the

corridor. If delays are reduced, the overall Arterial Speed will increase, whereas if delays increase, then the overall Arterial Speed would decrease.

4. The *Network Total Delay* is a measure of the total cumulative delay time observed by all vehicles entering or traveling through the corridor and is measured in hours. This includes both delays on James Street as well as delays on the side street approaches to James Street.
5. The *Network Total Stops* is a measure of the total cumulative number of vehicle stops by all vehicles entering or traveling through the corridor during the A.M./P.M. peak hour only. This includes both mainline and side street approaches to the all of the signals in the James Street corridor.
6. The *Network Fuel Consumption* is a measure of the total cumulative fuel consumed by all vehicles traveling through the corridor either on the side streets or on James Street and is measured in gallons during the A.M./P.M. peak hour only.

8.3 Traffic Simulation Results

As discussed in Section 5, the LOS for both signalized and unsignalized intersections are defined in terms of control delay and range from LOS “A” to “F”. LOS “A” represents operating conditions of freely flowing traffic with little or no delay. LOS “F” represents operating conditions of highly congested traffic with forced (breakdown) flow and substantial delays.

An overall intersection LOS “D” or better is generally considered acceptable at a signalized intersection, while at an unsignalized intersection, LOS of “E” or better is acceptable. LOS below “D” at a signalized intersection indicates an average control delay per vehicle of more than 55.0 seconds. LOS below “E” at an unsignalized intersection represents an average control delay per vehicle of more than 50.0 seconds. The acceptable LOS thresholds differ because drivers generally expect longer delays at signalized intersections. Table 17 offers a LOS summary for all intersections for both the A.M. and P.M. peak hour.

Table 17: Level of Service Summary – A.M. /P.M. Peak Hour

Intersection	Overall Intersection LOS – A.M. Peak Hour			Overall Intersection LOS – P.M. Peak Hour		
	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
James Street @ Oswego Boulevard	A(8)	A(8)	A(7)	D(52)	C(26)	C(30)
James Street @ North State Street	B(16)	B(15)	B(16)	C(32)	C(30)	C(24)
James Street @ North Townsend Street	B(12)	B(17)	B(15)	C(23)	C(21)	B(16)
James Street @ North McBride Street	A(6)	A(6)	A(6)	A(8)	B(11)	B(11)
James Street @ Catherine Street	A(9)	A(10)	A(10)	C(35)	B(20)	B(18)
James Street @ Lodi Street	B(16)	B(12)	B(14)	C(23)	C(22)	C(21)
James Street @ Oak Street	B(12)	B(18)	B(14)	B(17)	B(18)	B(13)
James Street @ DeWitt Street	B(11)	B(13)	A(8)	A(9)	B(17)	A(9)
James Street @ Sedgwick Street	A(8)	A(9)	A(7)	A(8)	A(8)	A(8)
James Street @ Wilson Street	A(5)	A(5)	A(2)	A(8)	A(3)	A(2)
James Street @ Teall Avenue	C(26)	C(26)	C(21)	D(37)	C(33)	C(27)
James Street @ Shotwell Park/Grant Blvd.	F(141)	E(63)	D(52)	F(171)	F(84)	E(80)

A(9) – Level of Service (Average Delay per Vehicle in Seconds)

8.3.1 Traffic Simulation Results, Alternative 1 – No Build

Under this scenario, the previous 2030 design year analysis results would be maintained. The James Street/Oswego Boulevard intersection will operate at a borderline LOS D/E during the evening peak hour with failing northbound Oswego Boulevard movements. The northbound North Townsend Street left-turn movement will begin to show failing LOS during the evening peak hour. The northbound North

Catherine Street approach will degrade from LOS E to LOS F during the evening peak hour. Several Teall Avenue approaches will begin to operate at LOS E during the evening peak hour. The James Street/Shotwell Park/Grant Boulevard intersection will operate at failing LOS during both the morning and evening peak hours.

8.3.2 Traffic Simulation Results, Alternative 2 – Pavement Reallocation, Alternative 3 – Enhanced Transit, and Alternative 4 – Roadway Reconstruction

Since all these alternatives include implementing a road diet that includes one vehicular travel lane in each direction between North State Street and Shotwell Park and includes left-turn lanes at all signalized intersections, the traffic analysis for these three alternatives is the same and is included under a single analysis.

Traffic signals were coordinated throughout the corridor using an 80 second signal cycle length during the morning peak hour and an 85 second signal cycle length during the evening peak hour. Based on the initial analysis completed, unacceptable failing LOS would develop at the intersection of James Street with both North State Street and Oswego Boulevard during the evening peak hour. Therefore, the existing intersection configuration will need to be maintained for these two intersections, with four travel lanes retained beginning at the Oswego Boulevard intersection and carrying through the North State Street intersection, then transitioning to the roadway alternative cross section. Additionally, based on traffic volumes and initial analyses, a right-turn is warranted on the eastbound approach of James Street to Teall Avenue.

Capacity analysis of Alternatives 2, 3, and 4, with the above noted modifications, indicates that LOS can generally be maintained or improved throughout the corridor with signal coordination and the lane reduction during both the morning and evening peak hours. The majority of intersections will experience LOS D or better for the overall intersection and individual movements. The exception is the intersection of James Street with Shotwell Park and Grant Boulevard which will continue to have failing LOS on the Grant Boulevard approach during both peak hours.

Queue analysis results show moderate increases in queue lengths along James Street associated with the lane reduction. The most significant increases are seen at the North Townsend Street and DeWitt Street intersections. These intersections show higher increases in the queue lengths as they are stop intersection locations within signal coordination plans.

Arterial Measures of Effectiveness (MOE) indicate that any of these alternatives would result in minor decreases in total travel time in the westbound direction on James Street of approximately 16 seconds per vehicle during the morning peak hour and 2-8 seconds per vehicle in each direction during the evening peak hour. The overall network would see more substantial improvements in MOE, including a 25%-30% reduction in total delay time, a 5% overall decrease in the number of stops during the evening peak hour, and 9%-14% reduction in overall fuel consumption during the peak hours.

8.3.3 Traffic Simulation Results, Alternative 5 – Traffic Signal Coordination without Road Diet Element

The traffic analysis of Alternative 5 assumes no change in lane configuration along James Street. Dedicated left-turn lanes would be provided at all signalized intersections. The traffic signals were coordinated throughout the corridor using an 80 second signal cycle length during the morning peak hour and an 85 second signal cycle length during the evening peak hour.

Capacity analysis of Alternative 5 indicates that LOS can generally be improved throughout the corridor with signal coordination during both the morning and evening peak hours. The majority of intersections will experience LOS D or better for the overall intersection and individual movements. The exception is the intersection of James Street with Shotwell Park and Grant Boulevard which will continue to have failing LOS on the Grant Boulevard approach during both peak hours.

Queue analysis results show that queue lengths along James Street would be comparable to or lower than the No Build analysis results.

Arterial MOE indicate that this alternative would result in moderate decreases in total travel time in the westbound direction on James Street of approximately 37 seconds per vehicle during the morning peak hour and approximately 26-27 seconds per vehicle in each direction on James Street during the evening peak hour. The overall network would see substantial improvements in measures of effectives including a 36%-40% reduction in total delay time, a 10%-11% overall decrease in the number of stops during each peak hour and 15%-19% reduction in overall fuel consumption during the peak hours.

8.4 James Street/Shotwell Park/Grant Boulevard Intersection Analysis

Under all five alternatives, the intersection of James Street, Shotwell Park, and Grant Boulevard shows failing LOS during morning and evening peak hours. While these improvements were not considered as part of the James Street Road Diet project, they should be considered in order to improve the operation of the intersection.

Intersection improvement options include a single lane roundabout and a five legged signalized intersection. This was the only intersection that was conceptually redesigned because all other intersections along the corridor are anticipated to function appropriately under the 2030 future conditions. As mentioned, development of any of the alternatives are not dependent upon improvements made to this intersection and all alternatives can be tied into the existing intersection geometry should no improvements to the intersection be made. Under both concepts, on-street bicycle lanes can be carried through the intersection.

8.4.1 Concept 1 – Roundabout

A single lane modern roundabout was evaluated for the intersection of James Street, Shotwell Park, Grant Boulevard, and Eastwood Road under the 2030 future conditions (see Figure 15). Analysis of the roundabout was completed using VISSIM, the industry standard used for roundabout simulation.

Figure 15: Sample Urban Roundabout for James Street/Shotwell Park/Grant Boulevard Intersection

The results of the capacity analysis indicate that the single lane roundabout can provide LOS B or better for all approaches during both the morning and evening peak hours. Maximum traffic queue at approaches to the roundabout are expected to be 160 feet or less during the morning peak hour and 230 feet or less during the evening peak hour.

This concept requires relocating the existing monument to either the center of the roundabout or within the western approach island. The conceptual layout of the roundabout would fit within the existing right-of-way.

8.4.2 Concept 2 – Five-Legged Signalized Intersection

A five-legged signalized intersection was evaluated for the intersection of James Street, Shotwell Park, Grant Boulevard, and Eastwood Road with a replacement of the triangular, two-signal configuration that currently exists (see Figure 16).

Figure 16: Sample Five-Legged Signalized Intersection for James Street/Shotwell Park/Grant Boulevard Intersection

The results of the capacity analysis indicate that the five-legged signal alternative can provide substantial improvements in overall operations compared to the null alternative. The intersection will operate at an overall LOS C during the morning peak hour with all movements operating at LOS D or better. The intersection will operate at an overall LOS D during the evening peak hour with some longer LOS E for the eastbound left-turning movement on James Street and the southbound Grant Avenue approach. All other movements would operate at LOS D or better. The queue analysis shows some long queues up to 462 feet on the James Street westbound approach to the intersection and 358 feet on the southbound Grant Avenue approach.

This concept requires relocating the existing monument east to the greenspace created by reconfiguring the intersection. The conceptual layout of the intersection would fit within the existing right-of-way.

The purpose of these intersection concepts was to simply determine if additional improvements could be made within the right-of-way. The results indicate that additional

improvements are possible and that the improvements would have a beneficial impact on traffic flow through the intersection. However, it should be noted that analysis was not performed on intersections outside of the study area further east in Eastwood. Thus, improvements experienced through implementing one of these concepts may not be fully realized if they result in failing conditions at subsequent intersections outside the study area. Also, impacts to historic resources and driveway modifications would require additional study, evaluation and public input.

8.5 Roundabout Assessment for Other Intersections

The City of Syracuse requested that the consultant team assess the potential for developing roundabouts at other key intersections along the James Street corridor. Other intersections of James Street at Teall Avenue, Lodi Street, North State Street, and Oswego Boulevard were analyzed as potential candidates for a roundabout. The intersections with Teall Avenue, North State Street, and Oswego Boulevard would require a two-lane roundabout in order to adequately handle the traffic volumes of both James Street and the cross streets. This would be difficult to achieve within the limits of the right-of-way. Additionally, the traffic signals can be optimized to achieve acceptable LOS at all of these intersections. The intersection of James Street and Lodi Street would be a good candidate for a single-lane roundabout, however, vertical curves on James Street do not allow for adequate approach grades into the roundabout. Due to these constraints, no other intersections are proposed for modification to a roundabout.

9.0 Evaluation of Alternatives

9.1 Evaluation Matrix Results (Goals and Objectives)

The SMTC and its consultants reviewed project goals with the SAC and the public. Feedback received during this process was used to create objectives for each goal. The goals and objectives were organized into an Evaluation Matrix, and each alternative was evaluated based on its ability to achieve study objectives. The Evaluation Matrix includes objectives that reflect the results of the traffic analysis. The evaluation was completed by SMTC staff and the project consultants and reviewed with the SAC. Table 18 presents the evaluation of alternatives using the following system:

○ Alternative does not meet the objective.

◍ Alternative somewhat meets the objective.

● Alternative fully meets the objective.

Table 18: Evaluation Matrix

Evaluation Criteria					
Objectives	**Alternative 1 – No Build**	**Alternative 2 – Pavement Reallocation**	**Alternative 3 – Enhanced Transit**	**Alternative 4 – Roadway Reconstruction**	**Alternative 5 – No Road Diet Element**
Goal 1: Livability and Place Making					
Enhances the livability and economic vitality of the corridor.	○	●	◍	●	◍
Creates a street that people are attracted to and can use for both active and passive recreation.	○	●	◍	●	◍
Fosters interaction between neighborhood and street.	○	●	◍	●	◍
Goal 2: Access and Mobility					
Improves facilities and opportunities for pedestrians, encourages pedestrian use.	○	●	●	●	◍
Improves facilities and opportunities for bicyclists, encourages bicycle use.	○	●	◍	●	◍
Improves facilities and opportunities for transit, encourages transit use.	○	●	●	●	○
Enhances access to transit stops.	○	●	●	●	○
Improves transit operational efficiency	○	●	●	●	◍
Provides enhanced facilities for persons with disabilities (ADA compliant), seniors, and youth.	○	●	●	●	●
Results in acceptable vehicular levels-of-service.	◍	●	●	●	●
Reduces traffic congestion at identified congested intersections/location	○	●	●	●	●
Goal 3: Safety					
Improves pedestrian and bicycle safety at all crosswalks.	○	●	●	●	●
Reduces vehicle speeds.	○	●	●	●	○
Includes elements that have been demonstrated to reduce crashes.	○	●	◍	●	○
Accommodates year-round pedestrian and bicycle use.	◍	◍	◍	◍	●
Minimize conflict between vehicles and buses making stops.	○	●	●	●	○

Evaluation Criteria					
Objectives	**Alternative 1 – No Build**	**Alternative 2 – Pavement Reallocation**	**Alternative 3 – Enhanced Transit**	**Alternative 4 – Roadway Reconstruction**	**Alternative 5 – No Road Diet Element**
Goal 4: Flexibility					
Features are interchangeable amongst alternatives to allow for flexibility in design/construction.	◐	●	◐	◐	●
Features can be removed/exchanged if they become cost prohibitive with overall intent of the road diet retained.	◐	●	●	◐	●
Alternative can be realized through staged implementation.	●	●	●	●	◐
Alternative can be used for other candidate streets.	◐	●	●	●	●
Implementation accommodates future funding.	◐	●	●	◐	●
Goal 5: Context					
Complies with Citywide and community plans.	○	●	◐	●	◐
Encourages higher density, mixed use development oriented towards the sidewalk within the urban core and urban multiple use areas.	○	●	◐	●	○
Preserves the single family residential character of the Sedgwick and Eastwood neighborhoods.	◐	●	●	●	○
Minimizes right-of-way acquisition.	●	◐	◐	◐	◐
Minimize the loss of greenspace.	●	◐	●	◐	◐
Goal 6: Balance					
Continues to act as a convenient commuter route for vehicles.	◐	●	●	●	●
Encourages access management within the urban core and urban multiple use areas while maintaining safe and sufficient access to adjacent properties.	○	●	○	●	○
Accommodates and encourages alternative modes of travel.	○	●	◐	●	○
Provides on-street parking for transients in the urban core area.	◐	●	●	●	◐
Includes intelligent transportation systems to improve communication and operations for all users.	○	◐	◐	◐	◐

Evaluation Criteria					
Objectives	**Alternative 1 – No Build**	**Alternative 2 – Pavement Reallocation**	**Alternative 3 – Enhanced Transit**	**Alternative 4 – Roadway Reconstruction**	**Alternative 5 – No Road Diet Element**
Goal 7: Healthy Environment					
Promotes healthy lifestyle by encouraging walking, bicycling, and other non-motorized modes of travel.	○	●	◍	●	○
Use of local, recycled, or natural materials.	○	●	●	●	◍
Incorporates sustainable design features that minimize the impact of the roadway.	○	●	●	●	◍
Addresses stormwater quality and quantity.	○	◍	○	●	○
Minimizes future maintenance and operational costs.	◍	◍	◍	◍	◍
Incorporates requirements from Greenroads Manual v1.0[7] and/or NYSDOT GreenLITES Roadway Environmental Sustainability Rating System[8].	○	◍	◍	◍	○
Goal 8: Visual Excellence					
Provides vegetation, greenspace, and other features that enhance the visual appearance and enjoyment of the corridor.	○	●	●	◍	◍
Improves the visual appearance of the Western Gateway.	○	●	●	●	○
Improves the visual appearance of the Catherine Street/James Street intersection.	○	●	●	●	○
Incorporates design features that require little maintenance.	◍	◍	◍	◍	◍

[7] Greenroads Manual v1.0 Rating System, University of Washington and CH2M Hill, 2010.
[8] GreenLITES Project Environmental Sustainability Rating System Scorecard, New York State Department of Transportation, v2.1.0, 2010.

The following indicate how goals and objectives are supported by the various alternatives and thus serve as the rationale for the completion of the Evaluation Matrix.

9.1.1 Goal 1: Livability and Place Making

This goal strives to create a street that people are attracted to and take pride in. The features incorporated into Alternatives 2 and 4 are the best options for attaining this goal as they aim to soften the impact of vehicular traffic and create more opportunities for alternative transportation modes.

Within the Urban Core area, the ideal situation is to create a corridor that enhances the creation and viability of a vibrant urban village that promotes pedestrian level activity. This has the potential to connect with the development of St. Joseph's hospital to create a unique urban neighborhood. Within the Urban Multiple Use area, the ideal solution is to create an atmosphere where various types of uses can coexist without negatively impacting each other. Within the Urban Residential area, the ideal situation is to create a street that allows the residential character to be maintained and reduces the impacts that an arterial typically would have on a residential area. The features in Alternatives 2 and 4 will aid in creating a unique corridor that people are attracted to and will encourage social interaction among people.

9.1.2 Goal 2: Access and Mobility

This goal aims to create a street that consists of enhanced access and mobility opportunities for all users. The features incorporated into Alternatives 2, 3, 4, and 5 all attain this goal as they all provide enhanced opportunities for transit, pedestrians, and bicycles.

Alternatives 2, 3, 4, and 5 all reduce travel time along the corridor and reduce traffic congestion at identified intersections. All five alternatives result in acceptable vehicular levels of service.

Alternatives 2 and 4 provide pull-off areas for buses to make stops outside of the vehicular travel lane, which avoids stopped buses blocking a travel lane. Alternative 3 is the only alternative that provides a dedicated transit lane that goes beyond all other alternatives in establishing an enhanced transit corridor.

Under Alternatives 2 and 4, a dedicated bicycle lane is provided along the outside edge of the pavement. This lane would be demarcated by pavement striping and signage. Bus pull-off lanes are provided where necessary to remove stopped buses from the travel lane. These bus pull-off lanes would be wide enough to avoid stopped buses from obstructing the bicycle lanes, allowing for bicycles to pass a stopped bus while remaining in the dedicated bicycle lane. Under Alternative 3, bicycles share the dedicated transit lane with buses, which is not ideal for novice bicyclists and not ideal for unsuspecting drivers not used to the setup. Additionally, when buses make stops, they block the entire lane, restricting bicycles from maneuvering around them without veering into the vehicular travel lane. Further, there is no physical barrier keeping vehicles from

using the dedicated transit/bicycle lane for traveling, passing, or making turns. The dedicated lane would be demarcated by pavement striping and signage. Alternative 5 does not provide any on-street bicycle facilities and does not provide a bus pull-off area, so enhanced bicycle and bus transportation is limited. Under Alternative 5, an off-road multi-use path is provided along one side of the road throughout the entire length of the corridor. This would require that bicycles and pedestrians share the same path, although path marking and signage would demarcate dedicated areas for each. This alternative would also require widening the existing sidewalk area into the existing greenspace.

In addition, there are frequent driveways along the corridor, which makes providing an off-road path for bicyclists less safe than providing and on-street bicycle facility because vehicles entering/exiting a driveway are focusing their attention on on-coming vehicular traffic and will often oversee an on-coming bicyclist in an off-road path, especially one that is 15-20 feet from the roadway. Additionally, within the Urban Core, it is best to accommodate bicycles on-street rather than with an off-road multi-use path. This will provide for a better pedestrian friendly atmosphere that is necessary to create a viable urban neighborhood. This can be accommodated by Alternatives 2, 3, or 4. Sample access management ordinances are provided in Appendix E for reference.

Within the Urban Multiple Use area, there are several establishments that house or attract people with mobility constraints and we want to ensure that people can reach destinations by alternative means of transportation but also ensure that these areas can continue to be reached by automobile. Under Alternatives 2, 3, and 4, sidewalks and crosswalks are improved and upgraded to ADA standards making the corridor more accessible for pedestrians. This also enhances transit stops and improves access to them.

Alternatives 2, 3, and 4 best meet the goal of providing enhanced access and mobility.

9.1.3 Goal 3: Safety

The intent of this goal is to improve safety along the James Street corridor for all users. As previously mentioned, implementing a road diet can improve safety by reducing the frequency and severity of crashes. According to the AASHTO Highway Safety Manual, there are a number of features that can reduce the frequency of crashes on an urban arterial. The conversion of a four-lane roadway to a three-lane roadway with two way left-turn lane can reduce crashes by nearly 30%[9]. Further, the frequency of crashes on an urban arterial can be reduced by as much as 30% if the number of access points is reduced[10]. Both Alternatives 2 and 4 provide a conversion of four lanes to three lanes with a two way left-turn lane. Alternative 3 reduces the number of travel lanes, but only

[9] Highway Safety Manual, 1st Edition, American Association of State Highway and Transportation Officials (AASHTO), Volume 1, 2010, page 13-10.
[10] Highway Safety Manual, 1st Edition, American Association of State Highway and Transportation Officials (AASHTO), Volume 1, 2010, page 13-51.

removes left-turning vehicles from the travel lane at signalized intersections. Mid-block left turns would be made from the travel lane. Providing on-street parking acts as a traffic calming measure and also provides a buffer for pedestrian activity. On-street parking is provided within the Urban Core in all alternatives but is expanded in Alternatives 2 and 4.

The Highway Safety Manual suggests that streets with shared bus/bicycle lanes reduce the total number of crashes. Installing unique pavement markings to highlight the conflict area between bicyclists and transit vehicles at bus stops is likely to encourage bicyclists to slow down when a bus is making a stop. These pavement markings are likely to reduce the number of serious conflicts between buses and bicyclists. However, since Alternative 3 does not provide a means to remove left-turn vehicles from the travel lane at mid-block intersections, encouraging vehicles to use the dedicated bus/bicycle lane to pass a vehicle that is stopped in the travel lane waiting to make a left turn. This will greatly impact the safety and comfort of bicyclists using the dedicated bus/bicycle lane.

Where a dedicated on-street bicycle lane is provided, narrowing the vehicle travel lane to accommodate the bicycle lane doesn't increase conflicts between vehicles and bicyclists. When a separate off-road facility is provided for bicyclists, the crash effects appear to be comparable to those of on-street bicycle lanes, although the number of vehicles-bicycle crashes at intersections increases. Both Alternatives 2 and 4 provide on-street bicycle lanes that are reallocated from a narrowing or reduction of travel lanes. Alternative 5 and a number of options under Alternatives 2 and 4 provide for an off-road multi-use path, which may make beginner and novice bicyclists more comfortable, however, are less likely to actually improve bicycle safety.

The AASHTO Highway Safety Manual also suggests incorporating raised and/or textured pedestrian crosswalks as a means to further improve pedestrian safety and enhance the pedestrian environment. This will make drivers more aware that they are entering an area of potential pedestrian use and the tendency is for the driver to reduce their vehicle speed. If a mid-block crossing is provided, the manual encourages the use of a median refuge island and curb bulb outs to reduce the width of pavement to cross[11].

Alternatives 2 and 4 best meet the goal of improving safety of the corridor.

9.1.4 Goal 4: Flexibility

Under this goal, road diet options for the James Street corridor will be flexible, allowing for choice and discretion to be used in design and implementation. Alternative 1 is obviously the most flexible as it requires no alterations, implementation, or future funding. The corridor remains as is. Alternatives 2, 3, 4, and 5 have features that are flexible, some of which can be implemented in stages within the existing pavement and

[11] Highway Safety Manual, 1st Edition, American Association of State Highway and Transportation Officials (AASHTO), Volume 1, 2010, page 13-54.

some of which require widening the roadway or constructing off-road facilities. Alternative 3 would not be transferable to any street; it would only work on a route designated for future enhanced transit. Alternatives 2 and 4 would only work on another four-lane roadway, although certain features can be used on any roadway. Alternative 5 can be implemented on any other urban corridor that shares a similar vision, however, staged implementation is less likely as traffic signals should be coordinated as a single phase and dedicated left-turn lanes need to be provided to remove left-turning vehicles from the travel lane. Providing other features such as enhanced transit facilities or bicycle facilities can be implemented in future stages.

9.1.5 Goal 5: Context

This goal looks to create a corridor that compliments and enhances the character of the surrounding neighborhood. Within the Urban Core area, the ideal situation is to create a corridor that enhances the creation and viability of a vibrant urban village that promotes pedestrian level activity. This is best accomplished by providing a wide sidewalk area, reducing the number of vehicular conflict points (such as curb cuts and driveways), calming vehicle traffic, enhancing transit facilities, and providing a buffer between the pedestrian and vehicular traffic, which can be accomplished by urban landscaping, greenspace, and on-street parking. With this is mind, the cross-section identified in Alternative 4 Segment B would be the ideal solution.

Within the Urban Multiple Use area, the ideal situation is to create a corridor that accommodates the range of residential and commercial uses. This is best accomplished by easing access to parcels, enhancing access to transit, and providing on-street bicycle lanes. Alternative 2 would be the ideal solution. There are two options for this segment, one provides a three-lane section with on-street bicycle lanes, the second option provides a three-lane section with on-street parking on one side of the street, with an off-road multi-use path on one side of the street.

Within the Urban Residential area, the ideal situation is to create a corridor that preserves the single family residential character of the neighborhood and enhances opportunities for pedestrians and bicycles. This is best accomplished by reducing the number of travel lanes to soften the impact of vehicular traffic, easing resident's access to driveways, providing on-street bicycle lanes, and filling in street trees to maintain the tree canopy. With this in mind, the cross-section identified in Alternative 2 Segment G would be the ideal solution.

9.1.6 Goal 6: Balance

This goal aims to balance the needs of commuters, alternative transportation modes, and the residents/community. Alternatives 1 and 5 continue to provide a convenient commuter route, however do not balance the needs of transit, bicyclists, and pedestrians very well. Alternative 3 meets the needs of transit users and bicyclists, but does not remove all left-turning vehicles from the travel lane. Therefore, Alternative 3 does not balance the needs of vehicular users well. Additionally, Alternative 3 would require widening at each signalized intersection in order to accommodate dedicated left-turn

lanes, impacting the needs of the residents who would be losing greenspace. Alternatives 2 and 4 provide the best balance between commuters, transit, bicyclists, and pedestrians, and residents with Alternative 4 going to extra means to further balance these needs within the Urban Core.

9.1.7 Goal 7: Healthy Environment

The intent of this goal is to incorporate sustainable options in order to minimize the impact of the roadway and creates a healthy environment. Alternative 1 does nothing to meet this goal. Alternative 5 improves traffic flow resulting in reduced fuel usage. Additionally, this alternative provides an off-road multi-use path to encourage walking and biking, but doesn't do much else to create a healthy environment. Alternative 3 provides a dedicated bus/bicycle lane to encourage transit use and bicycling. However, the nature of sharing a lane with buses and the fact that vehicles may use the dedicated bus/bicycle lane as a travel or passing lane may make some bicyclists uncomfortable. Alternative 2 provides enhanced transit facilities, on-street bicycle lanes, and improved pedestrian facilities that will encourage people to use alternative means of transportation. Alternative 4 meets this goal the best as it consists of options to narrow the roadway within the Urban Multiple Use and Urban Residential areas and replaces pavement with greenspace. This alternative also provides areas within the greenspace to manage stormwater in open bioswales or rain gardens to reduce runoff into the City's sewer system. Additionally, this alternative allows these stormwater management options to be incorporated into the Urban Core area where existing driveways are eliminated due to access control. Alternatives 2 and 4 both encourage the development of an urban neighborhood throughout the Urban Core area. This will promote a pedestrian friendly business district.

9.1.8 Goal 8: Visual Excellence

This goal strives to bring high quality aesthetic improvements consisting of durable materials to the James Street corridor. Alternatives 1 and 5 do very little to enhance the aesthetics of the corridor. Alternatives 2, 3, and 4 all enhance the aesthetics of the corridor by enhancing the I-81 viaduct with lighting and decorative art, improving transit facilities, adding street trees to maintain the street canopy, providing more decorative lighting, and improving pedestrian and bicycle facilities. Alternative 3 requires widening at every signalized intersection in order to accommodate dedicated left-turn lanes, which will negatively impact the aesthetic appearance of intersections by increasing pavement and reducing greenspace. Alternatives 2 and 4 can accommodate left-turning vehicles within the center two way left-turn lane, thus avoiding widening at intersection, but include bus pull-offs that will extend into the greenspace. Alternatives 2 and 4 appear to be the best fit for this goal as they create a pedestrian friendly, urban corridor within the Urban Core area and minimize the impact on greenspace within the Urban Multiple Use and Urban Residential areas while providing dedicated left-turn lanes and enhanced transit, bicycle, and pedestrian facilities.

9.2 Public Review and Comment of Alternatives

A second public meeting was held on August 31, 2011 to review the alternatives for each of the three character zones and provide input as to which alternative they preferred for each character zone. At the meeting, people provided feedback on the various alternatives at three workstations. Each workstation focused on a character zone of the corridor: Urban Core, Urban Multiple Use, and Urban Residential. Each participant placed a sticker next to the alternative that they preferred for each character zone. In addition to the three workstations, a display was set up that focused on possible design improvement options for the intersection of James Street/Grant Boulevard/Shotwell Park. None of these options were incorporated into an alternative and each alternative can operate with or without the improvements to the intersection.

Below is list of how the alternatives ranked from 1 through 5, with 1 being the alternative most preferred and 5 being the alternative least preferred.

Urban Core

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 2 – Pavement Reallocation
3. Alternative 1 – Retain Existing Conditions
4. Alternative 3 – Enhanced Transit
5. Alternative 4 – Roadway Reconstruction

Urban Multiple Use

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 4 – Roadway Reconstruction
3. Alternative 2 – Pavement Reallocation
4. Alternative 1 – Retain Existing Conditions
5. Alternative 3 – Enhanced Transit

Urban Residential

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 4 – Roadway Reconstruction
3. Alternative 2 – Pavement Reallocation
4. Alternative 3 – Enhanced Transit
5. Alternative 1 – Retain Existing Conditions

As indicated above, participants generally indicated a preference for Alternative 5. However, if Alternative 2 and Alternative 4 are considered together, the results suggest that many meeting attendees support a road diet option as well.

The most vocal meeting attendees clearly stated that any reduction in travel lanes would be unacceptable. Several members of the public preferred Alternative 5 because does not reduce the number of travel lanes but still accommodates bicyclists outside of the travel lane (with an off-street multi-use path).

9.3 Evaluation of Traffic Analysis

After evaluating the results of the traffic analysis conducted for each alternative, Alternative 5 is the alternative that provides the greatest improvement to roadway LOS, reduces queue lengths the most, and results in the largest decrease in total travel delay. Alternatives 2, 3, and 4 all maintain or slightly improve roadway LOS and maintain or slightly decrease total travel delay, however, queue lengths generally increase due to the reduction of vehicle storage space.

10.0 Conclusions

This study yielded two viable options for implementation by the study sponsor. Alternative 5 best meets the public's expressed desire not to reduce travel lanes on James Street. Many members from the public expressed an interest in improving traffic flow through the corridor for motorists and felt that Alternative 5 best met this sentiment while also providing an opportunity for an off-street multi-use path. Several participants indicated a willingness to lose some greenspace and increase impervious surface to better accommodate bicyclists throughout the corridor.

However, the alternative that best meets the goals and objectives of this study, as indicated through the Evaluation Matrix (Section 9) is Alternative 2. The project sponsor should evaluate all this input prior to implementation.

Alternative 2 met all of the objectives (although 8 objectives were considered only "somewhat met"). The general feeling of the public was that they desired a roadway that improved traffic flow but that provided for other modes of transportation without impacting vehicle flow. Alternative 2 will actually accommodate both by improving traffic flow and providing for other modes of transportation. Alternative 5 provides an off-street paved bicycle path, however, reaching a width of 12-13 feet for this multi-use path would likely require cutting into the expansive tree lawn, impacting street trees and adjacent lawn areas. The public was strongly opposed to losing any of the trees and did not want an alternative that impacted adjacent greenspace or lawn areas. Implementing Alternative 5 without disturbing the street trees or adjacent lawn area is not feasible. Additionally, Alternative 5 does not enhance transit opportunities as buses would continue to make stops in the travel lane and would not be consolidated to provide for improved far side stops.

There was general concern by the public regarding maintenance of bicycle facilities. It is suggested that the roadway owner develop a maintenance plan to ensure that on-street bicycle facilities are swept and plowed to make for a safe bicycling area. Additionally, a maintenance

plan for the clearing of sidewalks should be developed to avoid the on-street bicycle lane being used by pedestrians in the winter.

Alternative 2 best meets the goals and objectives of this project for the following reasons:

- Enhances the "gateway" to Downtown.
- Improves the link between downtown and the remainder of the James Street corridor.
- Incorporates traffic signal coordination to improve traffic flow.
- Balances the needs of all users by maintaining the four-lane section as currently exists between Oswego Boulevard and North State Street to maintain acceptable traffic levels of service. Off-street bicycle facilities are provided through a grade or barrier separated path located within the sidewalk area to accommodate bicycles.
- Increases access and mobility by providing dedicated on-street bicycle lanes from North State Street to Shotwell Park, making the corridor more accessible for bicyclists and pedestrians.
- Has the potential to create a viable mixed-use urban neighborhood within the Urban Core area by promoting street level activity with wider sidewalks and on-street parking. Can connect with the expansion of St. Joseph's Hospital Health Center.
- Can incorporate raised and/or textured pedestrian crosswalks as a means to further improve pedestrian safety and enhance the pedestrian environment. This will make drivers more aware that they are entering an area of heavier pedestrian use, increasing the tendency for the driver to reduce their vehicle speed.[12]
- Provides flexibility in that the majority of the changes to the roadway cross-section can be done within the existing pavement width.
- Balances the needs of all users by providing bus pull-offs to remove stopped buses from the travel lane and enhancing transit facilities.
- Improves pedestrian level lighting, enhances the I-81 viaduct area, and replants street trees within the tree lawn where trees have been removed or are damaged. Provides other urban amenities such as bus shelters, benches, trash receptacles, etc.
- Facilitates vehicular turning movements to/from adjacent businesses and residential sites.
- Retains and enhances the residential character of the Urban Residential area by providing a corridor that is less like a commercial thoroughfare and more like a neighborhood street.

[12] Highway Safety Manual, 1st Edition, American Association of State Highway and Transportation Officials (AASHTO), Volume 1, 2010, page 13-47.

10.1 Implementation Plan

The City of Syracuse has requested that the Final Report outline an implementation plan for a road diet alternative that best meets to goals and objectives of the study. In the short term, the following outlines steps for implementing the alternative that best meets the goals and objectives of the study- Alternative 2. Alternative 2 requires the least curb relocation and roadway reconstruction and is the best fit within the confines of the existing roadway. If the roadway ever undergoes major reconstruction, steps can be taken to implement Alternative 4, which goes a step further in providing road diet strategies. It will be the responsibility of the roadway owner (City of Syracuse) and other facility owners (Centro) to implement any roadway improvements.

Conceptual Opinions of Probable Costs were developed for each stage of the implementation plan. These costs are conceptual in nature and highly variable based on refinement of the scope of improvements during detailed design. The conceptual costs were developed using information obtained from the New York State Department of Transportation weighted average bid pricing as well as information from the City of Syracuse. All costs reflect Fall 2011 pricing and include a 30% contingency for unknown factors.

10.1.1 Short Term Improvements

- Mill and overlay necessary segments to reestablish the crown of the roadway.
- Restripe roadway to appropriate cross-section.
- Consolidate bus stops.
- Enhance bus stops by improving access and providing bus shelters where warranted, benches (benches are provided inside bus shelters only; Centro does not install stand alone benches), trash receptacles, etc. Centro has limited ability to remove snow from its facilities, so maintenance provisions/agreements would need to be established with other during the winter. When formally requested, Centro will install a trash receptacle(s) at a bus stop/shelter, however Centro does not provide waste removal services and thus a maintenance provision/agreement with others to provide such services would be required.
- Coordinate traffic signals.
- Provide off-street bicycle lane between Oswego Boulevard and North State Street to provide bicycle connection to Downtown Syracuse.

The Opinion of Probable Cost for Short Term Improvements is $1,800,000.00.

10.1.2 Mid-Term Improvements

- Construct bus pull-offs.
- Develop transit vehicle signal preemption.
- Infill street trees/replace trees in poor conditions.
- Install bicycle racks.
- Improve sidewalks and crosswalks, bring into ADA compliance.
- Replace existing street lights with aesthetic light standards that are energy efficient.
- Provide pedestrian level lighting.
- Enhance gateways.
- Construct dedicated eastbound right-turn lane at Teall Avenue.
- Construct stormwater bioswale and rain garden areas.

The Opinion of Probable Cost for Mid Term Improvements is $2,500,000.00.

10.1.3 Long-Term Improvements

- Roadway reconstruction to attain Alternative 4 cross-sections.
- Achieve access control along James Street within the Urban Core, with access provided via side streets and alleys.

The Opinion of Probable Cost for Long Term Improvements is highly variable due to unknowns associated with full depth reconstruction. These unknowns include the impacts of related utility work, implementation of green infrastructure elements and the needs for construction phasing. Accordingly, the cost of Long Term Improvements would be in the range of $8 to $12 million.