

May 30, 2017

Town of Topsham

Draft Final Report
Transportation Master Plan - Topsham Fair Mall Road



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Executive Summary

The Topsham Fair Mall Road (located directly adjacent to Route 196 and Interstate 295 interchange) serves as the access road to the Town’s largest commercial area. This comprehensive Transportation Master Plan identifies strategies that address the following issues:

- Safety (places should be safe for all users)
- Aesthetics (promotes economic development while mitigating environmental impacts)
- Better Planning (anticipates and promotes economic development while minimizing the impacts of growth)
- Transforms Topsham Fair Mall Road from a commercial access drive to a town road through Complete Street strategies
- Positions the Topsham Fair Mall to remain competitive in the regional market and in the face of national commercial trends

This transportation master plan (TMP) sharply focuses on improvements within an area that serves the bulk of Topsham’s commercial activity (Topsham Fair Mall Road – TMFR) and as such will guide the Town of Topsham’s transportation programs and projects within this area over the next 30 years. The TMP derives its policy direction from the Town’s 2005 comprehensive plan and is designed to support achievement of community goals and objectives. At that time, the “four quadrant interchange area” was a focus of the comprehensive plan where follow up planning and zoning implementation occurred for the southwest quadrant.

This document provides program guidance, policies, level of service objectives, project lists, a financial plan, and a system for performance monitoring and reporting. Topsham’s multimodal transportation system – including its pedestrian facilities, streets and highways, and bicycle facilities – provides a structural network that is essential to the community’s daily life and commerce. However, while good mobility is an important outcome, the Town needs to balance the deeper goals for health, safety, quality of life, economic vitality, and land use and community character when making transportation decisions. This focused TMP applies the concept of **balance** to work out the many tradeoffs inherent in transportation planning. Balance is applied to the three elements of mobility – travel, circulation and access. Balance is applied to tradeoffs between modes (pedestrian, motor vehicle, transit, bicycle) with an emphasis over the next ___ years on key pedestrian and motor vehicle objectives. Balance is applied in resolving conflicts between the need for traffic capacity and the need for safe, pleasant commercial areas that reflect Topsham’s green, small-town community character. The costs of planning, designing, improving and managing the transportation infrastructure will represent a large and worthy investment program over the foreseeable future. This investment program is focused per segment of road area, with street improvements planned and designed to

benefit all modes, thereby improving efficiency and economic vitality while promoting continued high quality of life. One of the key findings of this TMP is that improved safety, aesthetics, and planning within this area represents an investment that not only serves to sustain the economic vitality of the Topsham Fair Mall area, but better serves the local residents as a safer, more aesthetic environment than currently exists. Finally, this TMP is designed to assist in future development reviews by offering guidance on preferred improves where future development impacts the current system.

Major findings from the public input, existing conditions report, and future capacity analysis include:

1. Desire for a more local feel/ reflection to the Topsham community through:
 - a. Improved pedestrian facilities
 - b. Enhanced landscaped areas (more trees)
 - c. Improved/ thematic signage through mall area
2. Four lane road sections beyond the “Hannaford” intersection are unnecessary given future growth/ capacity projections.
3. Current pedestrian facilities are either non-existent or lack safe accommodating facilities both in the public and private realm.
4. Retrofitting TFMR as a more town like street is an important infrastructure investment to maintain the commercial viability of the TFM.

Major policy recommendations and guiding principles include:

1. Addition of median beyond Hannaford intersection provides a safer and more pleasant experience for all users while maintain vehicle capacity for future growth
2. Roundabout installation at park Drive intersection creates better vehicle flow, fixes a poor geometric alignment of the current intersection, and improves pedestrian safety
3. Providing pedestrian facilities on both sides of TFM road for most of the commercially built area creates ...
4. Current lot to lot interconnections are good, but may be enhanced for all users.
5. As this plan focuses on transportation and holistic mobility, further thought should be given to future uses that enhance the vitality of the area (allowance for housing, accommodation of mobile vending, more attention to lot layouts for new buildings, etc.)

Background

In 1985, a shopping plaza with multiple retail tenants and a grocery store was built with the access drive of what has become Topsham Fair Mall Road. Easy access from the then newer interstate proved to be a good location for a shopping plaza. Over time the area grew to include drive through restaurant uses, and smaller retail plazas. The 1992 Comprehensive plan galvanized the “interchange” area as the bulk of Topsham’s foreseeable commercial growth, and soon after zoning complimented the retail uses. The early 1990’s also saw the major anchor of the area (Bradlee’s...retail store) give way to a call center that eventually became a large manufacturing center for Village Candle. The next major shift for the area came after the “Coastal Connector” was developed connecting I-295 to Route One via Route 196. Traffic increases occurred along 196 and so did expansion of the mall area. The Town saw and opportunity to spur economic growth, and Topsham Development Inc, with cooperation of a major landowner developed Park Drive. Park Drive is an attempt to diversify the economy of the area, and provided local non-retail businesses to have an area to grow in this expanding commercial area. The anticipation of future commercial growth spurred an effort to develop design guidelines for the area. These are still in place today. The Town also enacted a Municipal TIF in this area in 2004 to enable growth for the area. The mall area did in fact see significant expansion during the “big box” era starting with Home Depot in the early 2000’s followed by Best Buy and Target plazas soon after. The Target Plaza took the place of an approved Wal-Mart which was never constructed, and which built the Topsham Fair Mall Road extension that connected to Winter Street.

Through all of these expansions within and adjacent to the TFM, the transportation network faced capacity issues in regards to access from Route 196. In 2005, the Town undertook a transportation study that looked to relieve the identified issues. The study recommended adding another egress road which the town implemented in 2007 by developing Monument Place. Monument Place allowed nearly 300,000 s.f. of future retail to expand in the mall area, and also provided a shared use path that was the first phase of the Topsham Trail shared use path that intends to connect to the Androscoggin River Bike path in Brunswick. The study also recommended a traffic impact fee ordinance.

The TFM continues to expand in regards to use and re-use, and as brick and mortar establishments go, it is quite healthy. There is a low retail/ commercial vacancy rate at the mall and business activity in the area is excellent according to the tenants. The Topsham Fair Mall area sees some of the highest retail numbers in the state, likely due to the ease of access from the highway and proximity to surrounding population centers

With all of the development and transportation issues associated with this development a comprehensive transportation master plan for the mall road itself had never been undertaken. As such, the Planning Board had minimal guidance when reviewing projects for their traffic impacts off site. As the Planning Board and Planning Office anticipate this area to continue

as the major commercial activity area for Topsham, the idea of having a transportation plan that may not only accommodate future development, but transform the current system to remain attractive for future tenants. In summary, and as noted later, just as the town is making efforts to restore and revitalize the urban impaired stream running through the study area, this plan is a holistic look at mobility issues, serving to right size and revitalize the transportation system to best serve the economy and community.

1.0 Public Involvement and Steering Committee

The following Steering Committee met several times over the course of the study and included the following members.

Steering Committee

Kevin Kelley – Property Owner
Dana Cary – Bicycle / Pedestrian Advocate
Dan Catlin – Property Owner
Don Spann – Planning Board Chair
Jim Howard – Property Owner
John Larson – Property Owner
Scott Libby – Planning Board
Curt Nuefeld – Local Engineer
Bruce Van Note – Planning Board
Jeannette MacNeille – Bicycle / Pedestrian Advocate
Tom Thompson – Planning Board
Steve Pelletier – Property Owner / Business Owner

Public outreach included two public meetings, a full day Open House to obtain meaningful feedback, multiple Steering Committee meetings, and a presentation to the Town Council. The following summarizes key comments.

Summary of Public Workshop # 1 – June 28, 2016

- Make TFM competitive with other regional malls
- Improve pedestrian circulation along TFMR and within developments – *The plan includes enhancements to sidewalks; crosswalks and intersection conditions.*
- Create a park on town land / DEP easement – *Through the visioning process, the possible creation of a park area was noted for this area as long as it meets the conditions of previous permits and the goals and standards related to improving water quality in the urban impaired stream*
- Create a pedestrian / vehicular connection from TFM to Best Buy site - *The plan includes a path that would lead to the area noted connection.*
- Extend shared used path through study area – *The plan extends the Path to the Panera Drive.*
- Study possible bike lanes on TFMR – *The plan includes bicycle lanes from Monument Place to Winter Street/River Road.*

- Place employee parking behind TFM to free up parking and green space – *The plan includes this recommendation.*
- Integrate stormwater and mobility infrastructure improvements – *The plan calls for a coordination / integration of improvements mitigating stormwater impacts, reducing impervious surface, and leveraging and cross referencing the recommendations of the 2014 Topsham Fair Mall Stream Watershed Based Plan.*
- Relocate / improve entrance sign – *The plan includes wayfinding recommendations.*
- Create a unified wayfinding system matching entrance sign design – *The plan includes wayfinding recommendations.*
- More trees. Shade is good – *The plan recommends extensive street tree plantings within and outside the ROW.*
- Plan for expansion of Hannaford – *The plan includes adding intersection capacity at the Monument Drive intersection to accommodate future expansion.*
- Two lanes out, one lane in at Hannaford – *The plans includes this configuration.*
- Consider a roundabout at one or more of the intersections – *A roundabout is proposed at the Park Drive intersection.*
- Account for growth on Crooker property – *Traffic growth at Crooker’s is included.*
- Account for future growth within study area – *A reasonable future growth plan is assumed and documented in the Plan.*
- Create inter-parcel connections to the west of TFMR – *Inter-parcel connections are included in the Plan.*
- Study location of medians to improve character of area, control access, and manage stormwater – *Medians are strategically located within the ROW.*
- Review parking standards – *The plan calls for compact car parking along the ROW*
- Review traffic impact fees -

Summary of Public Workshop # 2 – November 16, 2016

- More pop up seasonal uses in parking lot -
- Study any impacts to parking -
- Roundabout is a practical solution in proposed location
- Make sure the improvements can be phased logically – *An implementation plan is included.*
- The intersection of TFMR and Winter Street needs additional analysis – *A review was conducted and it is recommended that sight distance obstructions be considered as well as improved wayfinding signage. An assessment of a flashing beacon should be conducted in the future.*
- Why focus long-term growth at 196 intersection? Spread it along TFMR Frontage – *The plan assumes that growth focused at this intersection will help create a gateway to the area, improve the pedestrian experience, and benefit from high visibility.*
- Look at Town-owned land in center of study area as a green space -
- The wayfinding system makes sense and could be expanded throughout Topsham -
- Look for ways to integrate the Urban Impaired Study recommendations into this Master Plan -

- Sidewalk on northeast side of Park Drive makes sense – The Plan includes the note sidewalk.
- When making inter-parcel connections, note potential conflict with shared use path on Monument -
- TFMR is a Town ROW - an opportunity for safety, aesthetic, and economic development – *The plan applies placemaking principles to the retrofit of TFMR in order to maintain appropriate capacity while creating a more inviting location.*
- Consider pedestrians crossing 196 - such as high school students – *The Plan includes crosswalks in conjunction with redevelopment of the Crooker site or a formal ADA compliant sidewalk on the north side of Route 196.*
- Maintain shared use path width and possibly narrow sidewalk on other side – *The plan includes this recommendation.*
- Create compact car parking along TFMR rather than remove – *The plan includes this recommendation.*

Summary of Open House – October 13, 2016

- Winner’s Circle needs to remain open under current land use conditions. – *The Plan acknowledges the need to maintain Winner’s Circle under current land use conditions. Full closure is recommended at the time of future redevelopment.*
- Maintaining traffic capacity between Monument Place and Route 196 is appropriate. – *The Plan supports this objective.*
- Elimination of one right-turn lane onto Route 196 makes sense given use of Monument Drive. – *A review of traffic volumes and modeling supports this change.*
- Hannaford Supermarket is busy and enhancing traffic capacity should be considered. – *The Plan adds capacity to the Hannaford Drive/Monument Drive intersection.*
- Improving bicycle and pedestrian facilities is a good idea. – *A key component of the plan improves bicycle and pedestrian conditions.*
- Plan looks expensive and how will it be paid for. – *A cost estimate and phasing plan is included. Implementation is expected to take many years and include redevelopment projects.*
- Left turn into McDonald’s – *No changes are proposed for current conditions. Closure is proposed when redevelopment takes place.*
- Sight lines at Winter Street...blinking light – *These are included as recommendations.*
- Park Drive sidewalk needed – *The plans include a sidewalk.*
- Is all of this needed? – *The plan is a guiding document for improvements that will be implemented in phases.*

2.0 Project Purpose and Goals

Placemaking Master Plan Goals

1. Safety (places should be safe for all users)
 - a. Calm traffic and speeds – while meeting existing and future capacity needs for diverse growth.
 - b. Reduce points of conflict on TFMR and adjacent sites. Create intuitive and functional vehicular and pedestrian patterns.
 - c. Make accommodations for safe bicycle / and pedestrian connections. Encourage people to walk and bike within and to the study area. Foot traffic = increased financial sustainability and integration with community.

2. Aesthetics (more than meets the eye)
 - a. Increase the viability of the area by making TFMR an Attractive town street.
 - b. New landscaping, lighting, signage, and other streetscape components integrated with transportation improvements will calm traffic and increase connectivity.
 - c. Upkeep and enhancements to aesthetics will make TFM more regionally competitive.

3. Better Planning (leads to better places)
 - a. Identify and accommodate current and future needs for this area in order to address growth in an informed manner.
 - b. Use the Master Plan to help the Town work with developers in a proactive manner. Each project is an opportunity to implement site design standards as well as the vision of the Master Plan.
 - c. The TFMR, TFM, adjacent development and future growth must be addressed holistically through integrated transportation planning, economic development initiatives, and revised codes. Anticipate growth, encourage it, and establish funding mechanisms to pay for improvements that increase environmental and economic sustainability.

3.0 Existing Conditions

Transportation

Evaluation of existing transportation characteristics was performed and included collection of vehicle, pedestrian and bicycle volumes; assessment of safety and speed data; a level of service analysis; and a detailed infrastructure inventory.

Study intersections evaluated included those depicted on **Figure 1**.

- Route 196
- Monument Place
- Park Drive
- Midway Drive
- Panera
- Best Buy
- Target North
- Target South
- Winter Street/River Road

Intersection traffic volumes were collected at the study intersections during the weekday PM and Saturday Mid-day peak hours. The counts were conducted in May 2016 and concluded that the Weekday PM peak hour generally occurs between 4:30 and 5:30PM and the Saturday peak hour generally occurs between 12:00 Noon and 1:00P

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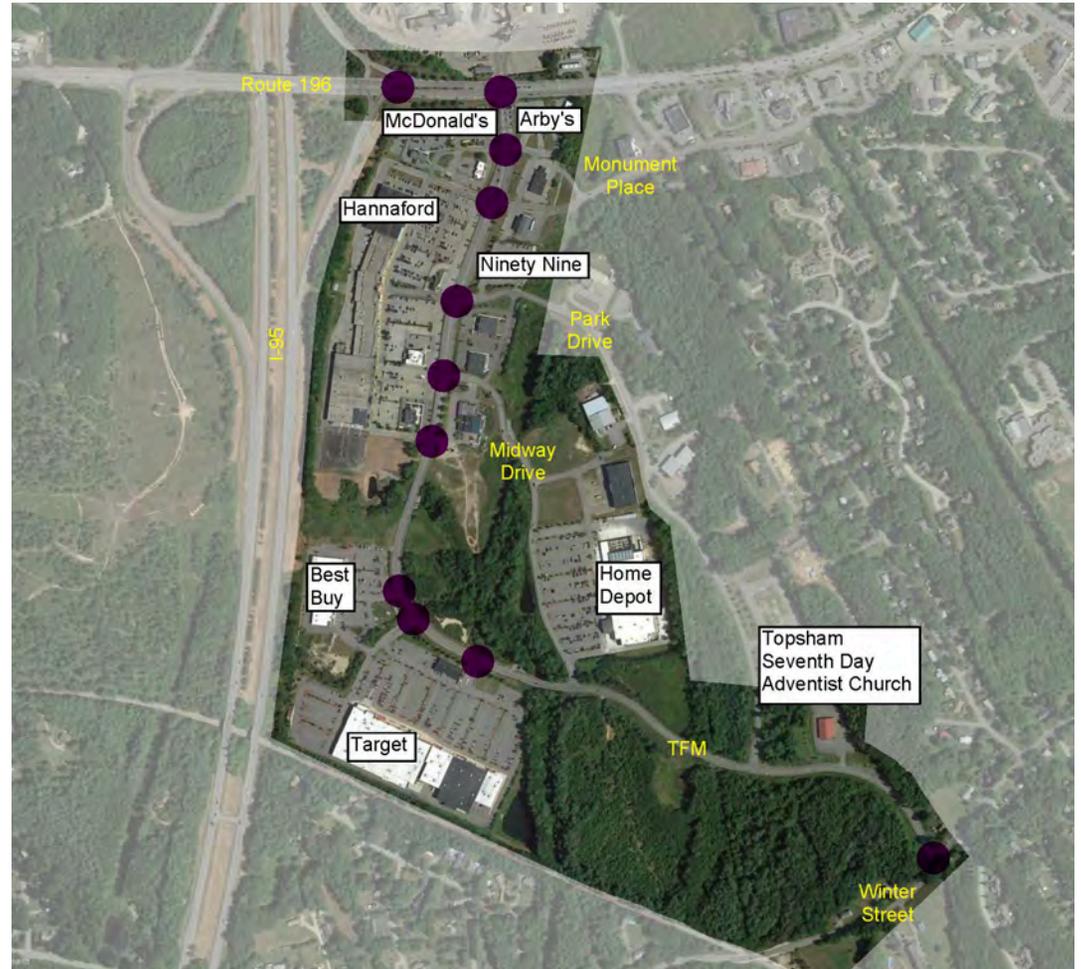
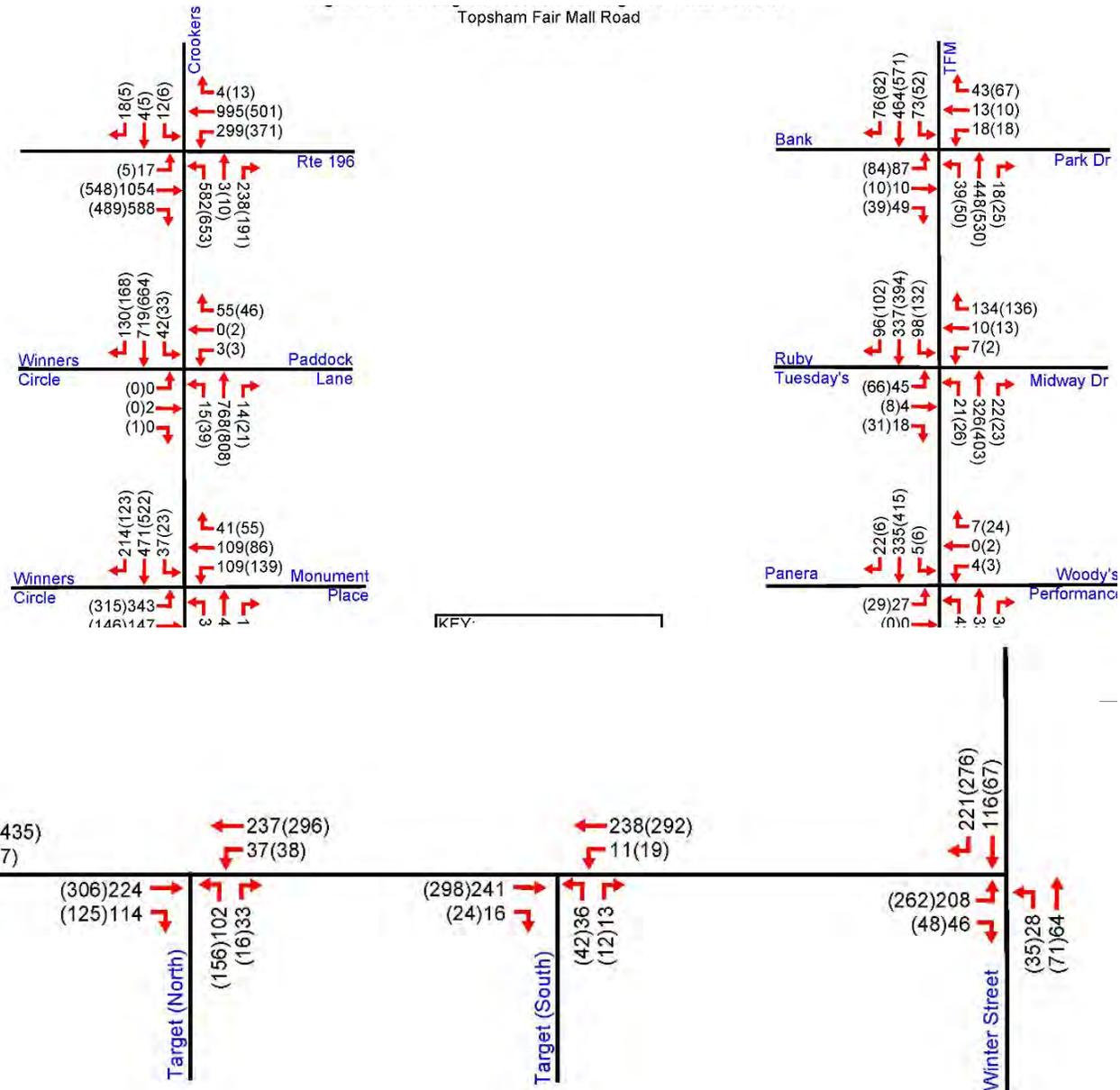


Figure 1 – Study Intersections

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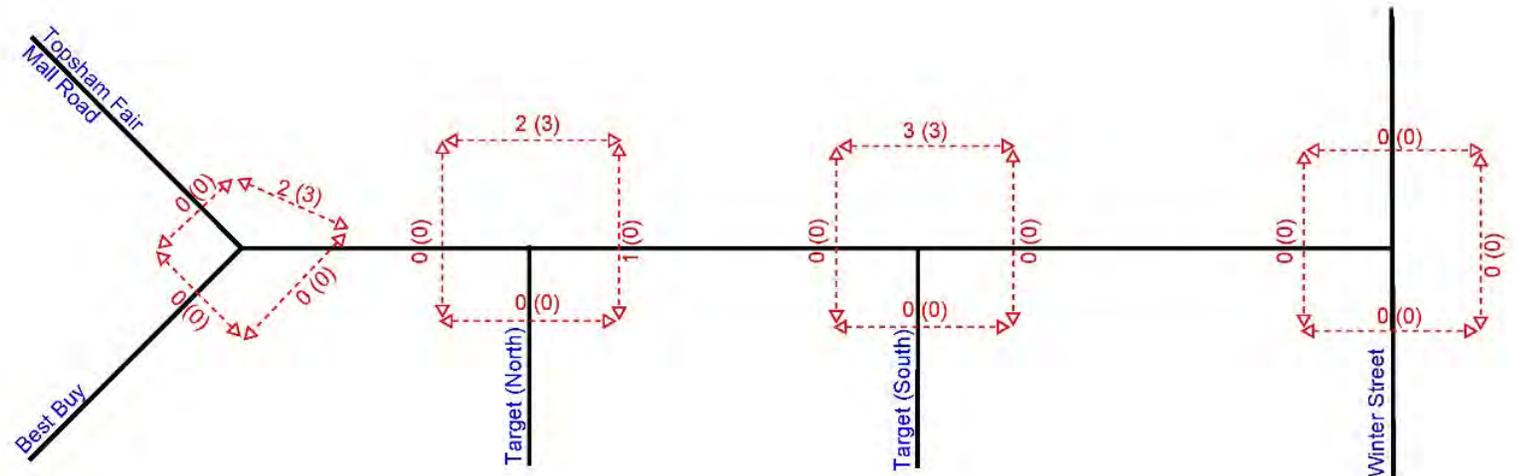
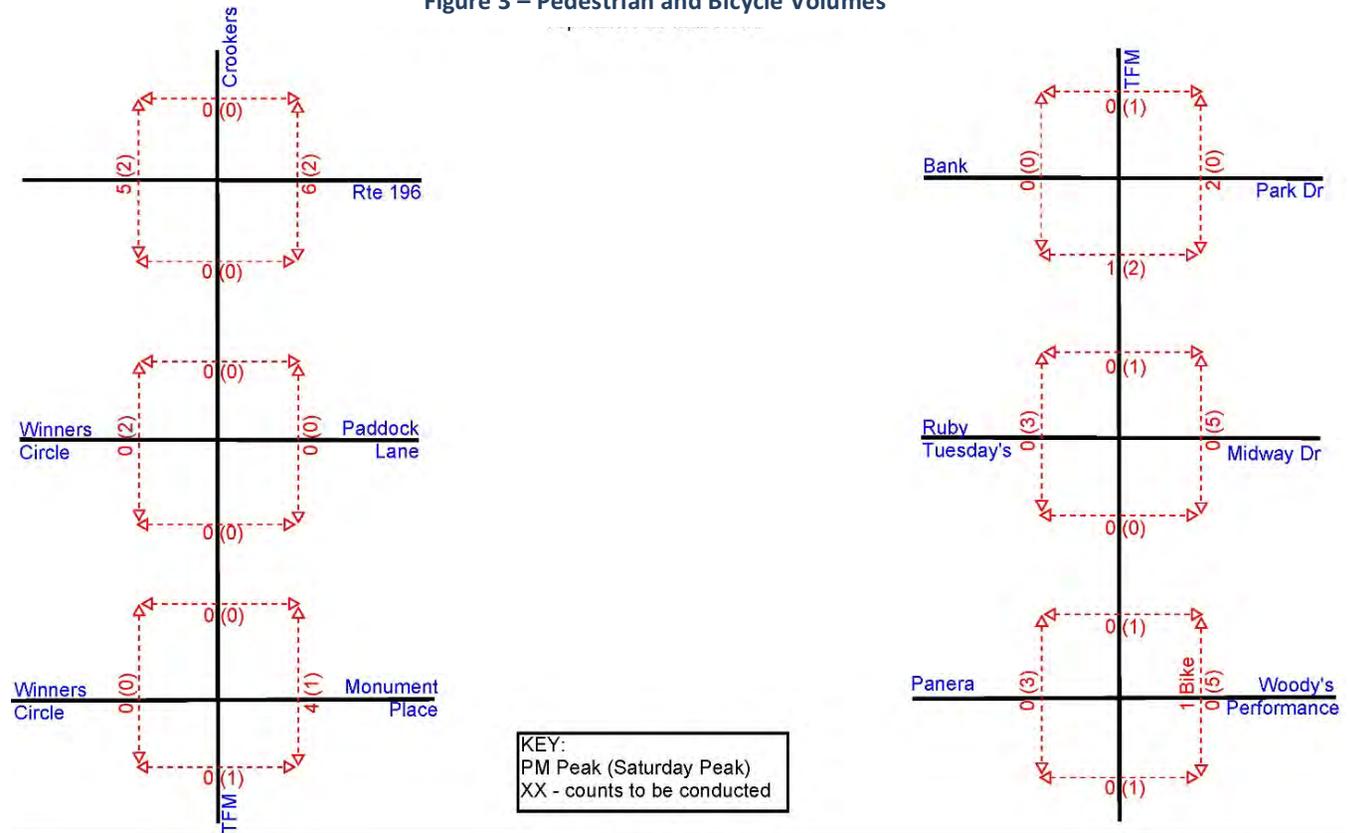
5:30PM and the Saturday peak hour generally occurs between 12:00 Noon and 1:00PM. **Figure 2** depicts the Weekday PM and Saturday peak hour traffic volumes. These volumes will be use to assess intersection operations and capacity conditions.

Figure 2 – Intersection Traffic Volumes

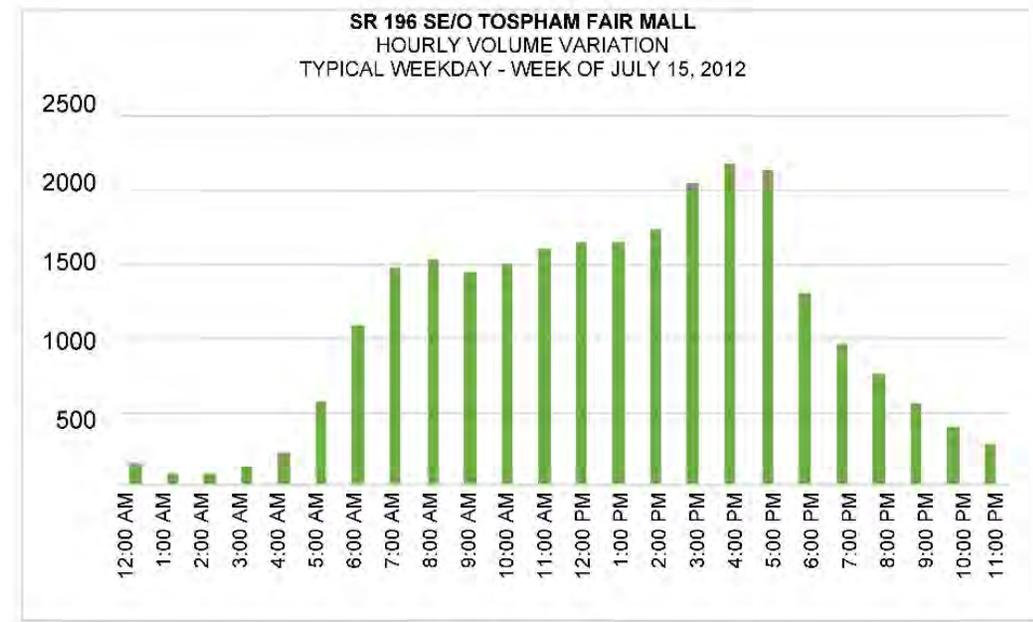
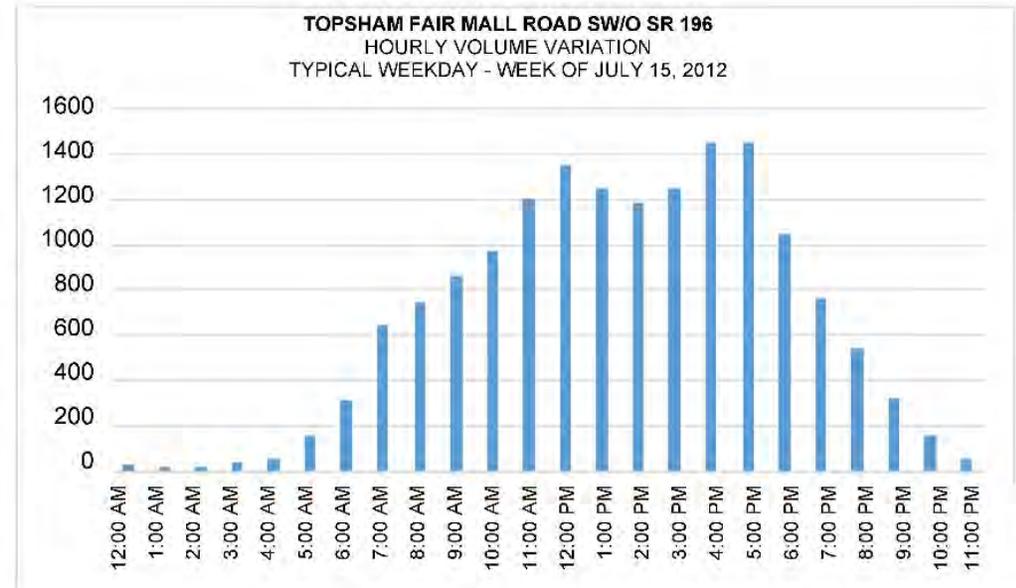


Pedestrian and bicycle volumes were collected at the study intersections during the weekday PM and Saturday Mid-day peak hours. The counts were conducted in May 2016 as part of collecting vehicle volumes. **Figure 3** presents the Pedestrian and Bicycle volumes. As noted pedestrian volumes are low and only one bicyclist was recorded.

Figure 3 – Pedestrian and Bicycle Volumes



Hourly traffic volume variation was reviewed at the Route 196/Topsham Fair Mall Road intersection during a typical weekday. The charts to the right provide hourly volumes on a typical weekday during the week of July 15, 2012. For Route 196 west of Topsham Fair Mall Road volumes are steady from 7:00 AM to 2:00PM with the greatest volume of the day occurring between 3:00PM and 6:00PM. The highest volume occurred between 4:00PM and 5:00PM. On Topsham Fair Mall Road, traffic volumes slowly increase during morning hours with the greatest volumes occurring between 11:00AM and 6:00PM. The highest volumes occurred during the commuter PM time period, although volumes also peak at noon-time.



Crash data from MaineDOT was obtained for the most recent available three-year period (2013-2015) for the study area. **Figure 4** illustrates the crash data. There were no High Crash Locations identified along Topsham Fair Mall Road during the study period. The Route 196 intersection had the highest number of crashes (18), but the crash rate was low, as compared to other state-wide similar intersection. In addition to collecting crash data from Maine DOT a review of crash data from the Topsham Police Department was obtained. Additionally, crashes were identified through the local reporting, but no safety deficiency was concluded.

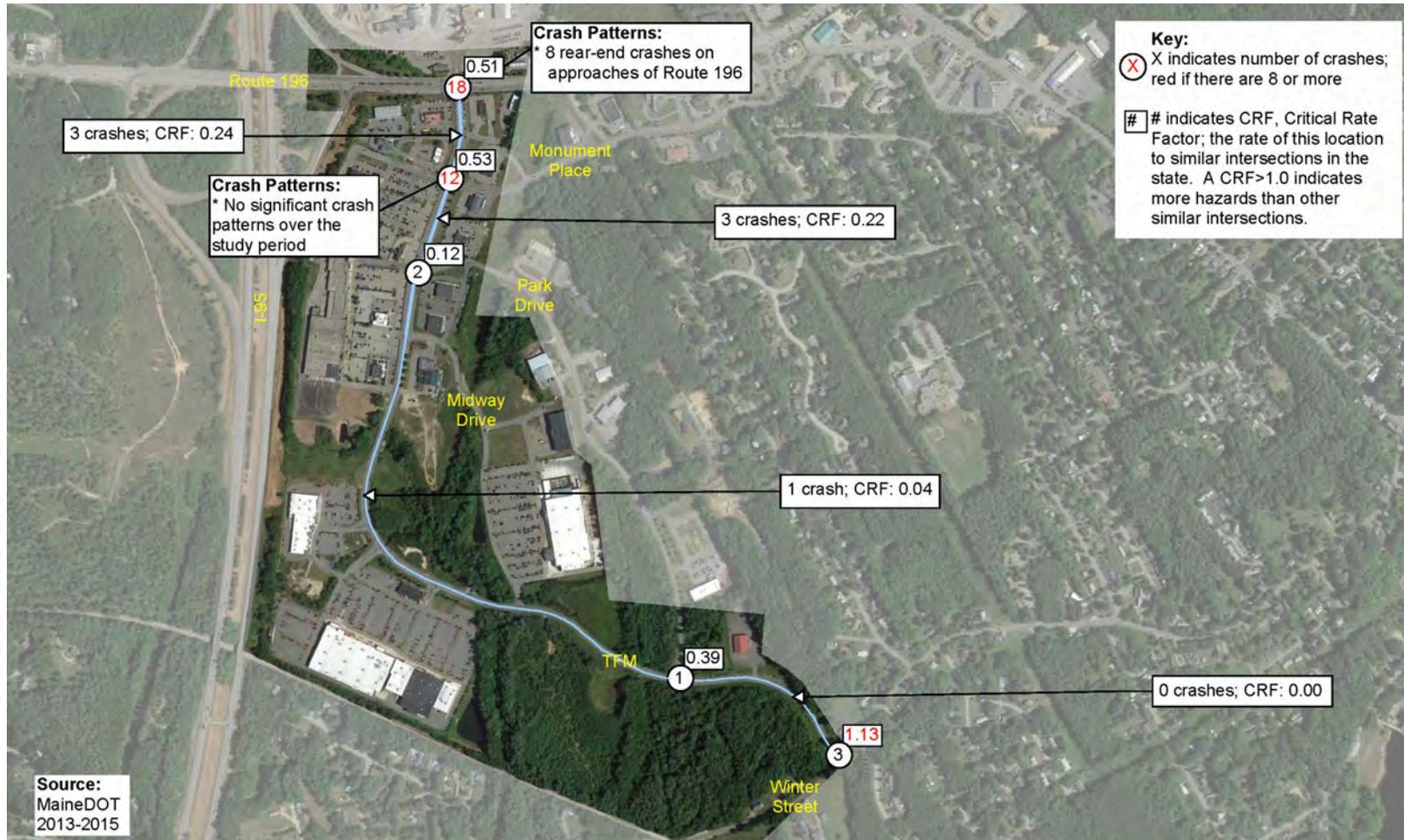


Figure 4 – MaineDOT Crash History

Speed data was collected along Topsham Fair Mall Road at two locations on June 23, 2016. **Figure 5** presents the speed data. South of Midway Drive, the average speed recorded was 29 MPH and the 85th speed was 33 MPH. With a posted speed limit of 25 MPH, speeds are high. Just east of Target, the average speed was 29 MPH and the 85th speed was 34 MPH. These speeds are consistent with the posted speed limit of 35 MPH.

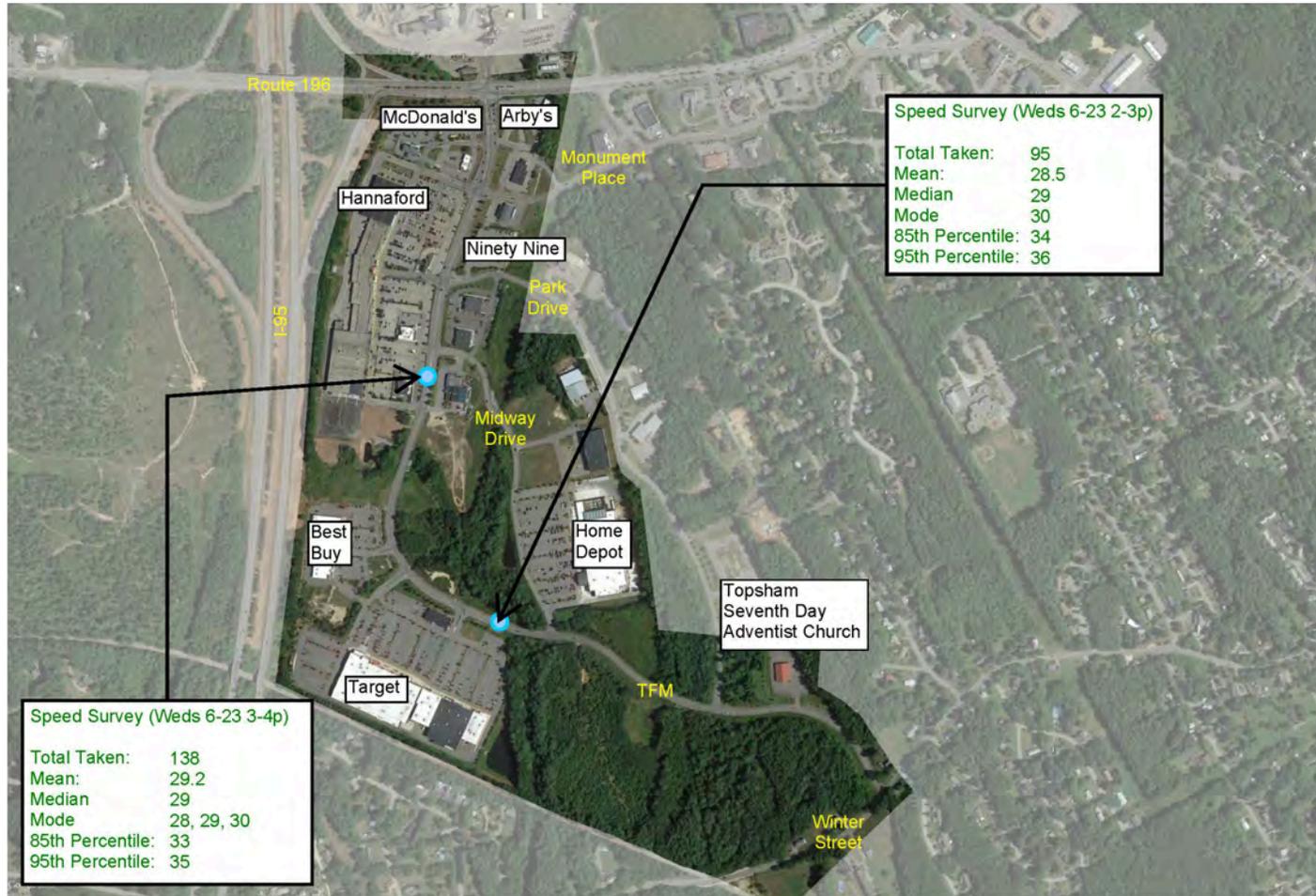


Figure 5 – Speed Survey Results

A Level of Service analysis was conducted at the study intersection according to methods contained in the Highway Capacity Manual, Transportation Research Board. A Synchro/ SimTraffic model was created and used to determine level of service, vehicle delay and queuing. The standard used to evaluate traffic operating conditions of the transportation system is referred to as the Level of Service (LOS). This is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays, and freedom to maneuver. **Figure 6** depicts existing level of service results. As noted most intersection operate at acceptable levels of service with the exception of Route 196 and Monument Place.

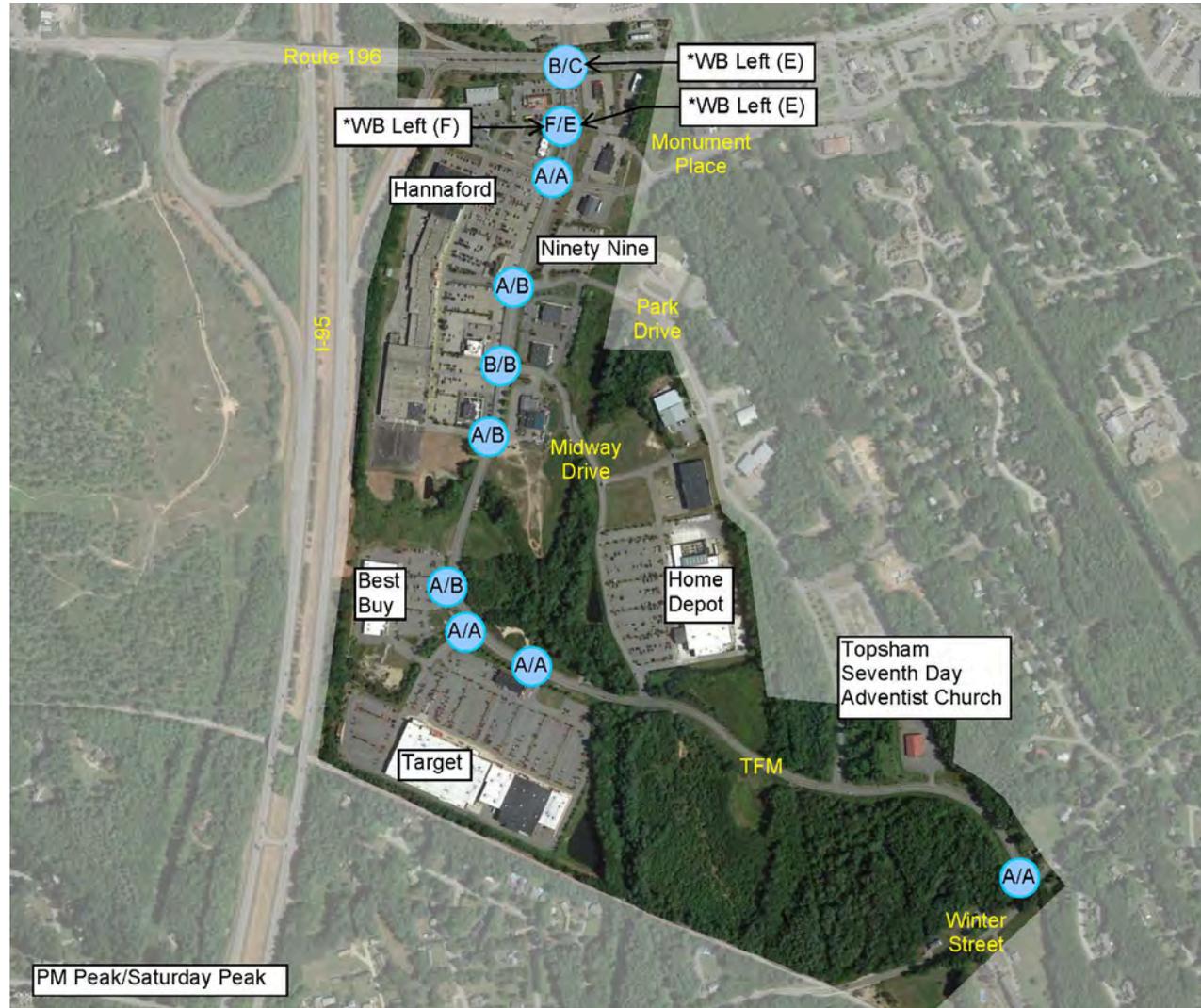


Figure 6 – Existing Level of Service

4.0 Growth Projections

To ensure that the investment in transportation infrastructure improvements not only serves existing conditions but future conditions, a 20-year traffic volumes growth scenario was included in the development of Master Plan improvements. Growth assumptions were based upon both existing lots that are permitted for development and other possible land development opportunities. The intent of this growth forecast is to reasonably estimate overall growth without over or under-predicting development changes. Based upon feedback from both Town Staff and Local Development experts, **Figure 7** depicts the 2036 “Build-Out” scenario used for assessing future traffic conditions. Traffic generation from the assumed future development was based upon trip generation methods contained in the Trip Generation Manual, Institute of Transportation Engineers.

Table 1 presents the future peak hour trip generation estimate. As noted approximately 1,000 peak hours trips will be added to the roadway system from the assumed build-out program.

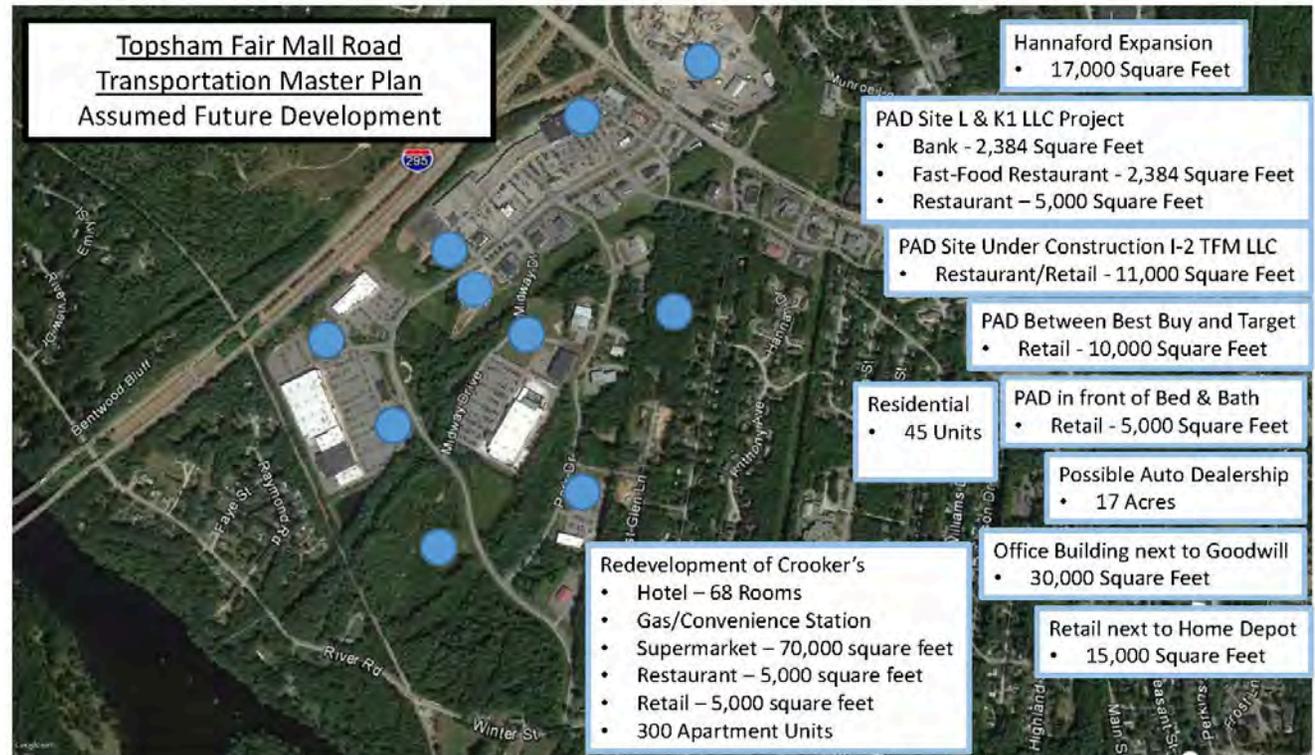


Figure 7 – Assumed Development

Table 1 – Future Trip Generation Estimate									
Location	Land Use Type	Size	Saturday			PM Peak Hour			Weekday
			Enter	Exit	Total	Enter	Exit	Total	
Hannaford Expansion	Supermarket	17,000 SF	23	67	91	30	67	97	1738
PAD site next to Panera	Retail	Bank,FF,Sit down	72	69	141	47	45	92	2696
PAD site under construction	Restaurant/Retail	11,000 SF	73	53	126	36	27	63	818
PAD site between Target and Best Buy	Retail	10,000 SF	25	23	48	18	19	37	427
PAD site in front of Bed & Bath	Retail	5,000 SF	13	12	24	9	10	19	214
Auto Dealership on 17 Acre Site	Commercial	17 acres	18	19	37	18	20	38	846
Office next to Goodwill	Office	20,000 SF	5	4	9	5	25	30	221
Office abutting above	Office	10,000 SF	2	2	4	3	12	15	110
Retail Next to Home Depot	Retail	5,000 SF	13	12	24	9	10	19	214
Retail Next to above	Retail	10,000 SF	25	23	48	18	19	37	427
45 single-family homes Mallet Drive	Residential	45 units	23	19	42	28	17	45	430
Reduction for pass-by and shared trips 40%			107	114	221	77	102	178	3084
Sub-Total New Trips			183	190	373	143	169	312	5055
Front of Crooker									
Hotel	Hotel	68 Rooms	26	19	46	23	24	48	607
Gas Station	Gas Station	12 VFP	81	81	162	81	81	162	1953
Supermarket	Supermarket	70,000 SF	380	365	746	338	325	664	7157
Restaurant	Restaurant	5,000 SF	37	33	70	30	20	49	636
Retail	Retail	5,000 SF	13	12	24	9	10	19	214
Residential	Apartment	300 units	78	78	156	121	65	186	1995
Reduction of pass-by and shared trips 40%			246	235	481	241	210	451	5024
Sub-Total New Trips			369	353	722	361	315	676	7537
Total			553	542	1095	505	484	989	12592

Figure 8 illustrates the expected traffic volume growth during the Weekday PM peak hour. As noted traffic volumes are estimated to grow by between 20% and 27% at the Route 196/Topsham Fair Mall Road intersection over the next 20 years. The greatest volume growth is expected on Route 196 west of Topsham Fair Mall Road, where I-295 is a key roadway origin and destination

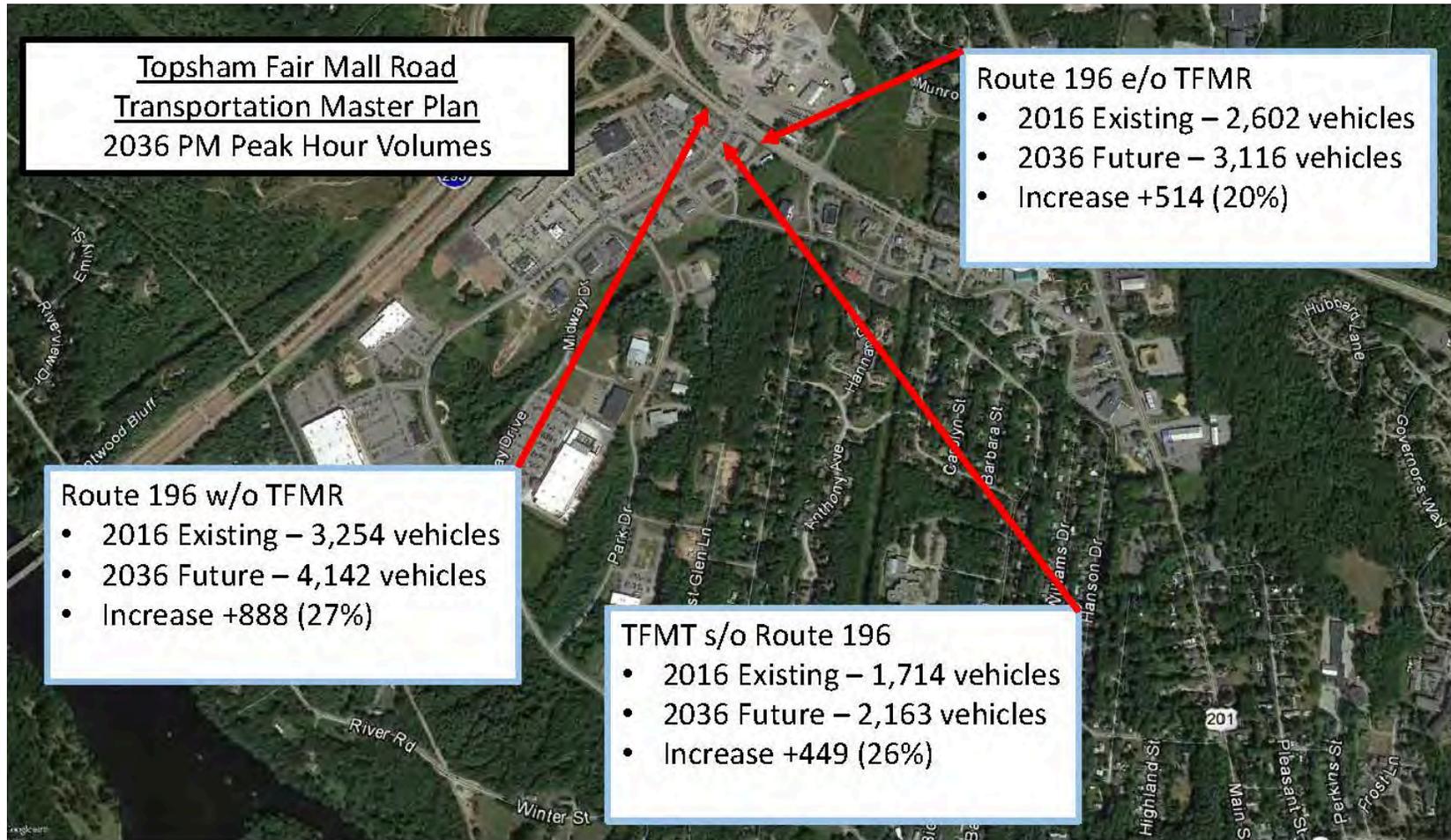


Figure 8 – 2016 to 2036 Traffic Volume Change

Future traffic volume change along TFMR is noted on **Figure 9** and displays a key principle guiding roadway capacity needs and recommendations. Between Route 196 and Monument Place volumes concentrate and are significant and roadway capacity should be maintained. As you continue along Topsham Fair Mall Road, volumes decline by about 60% and roadway capacity becomes less critical.

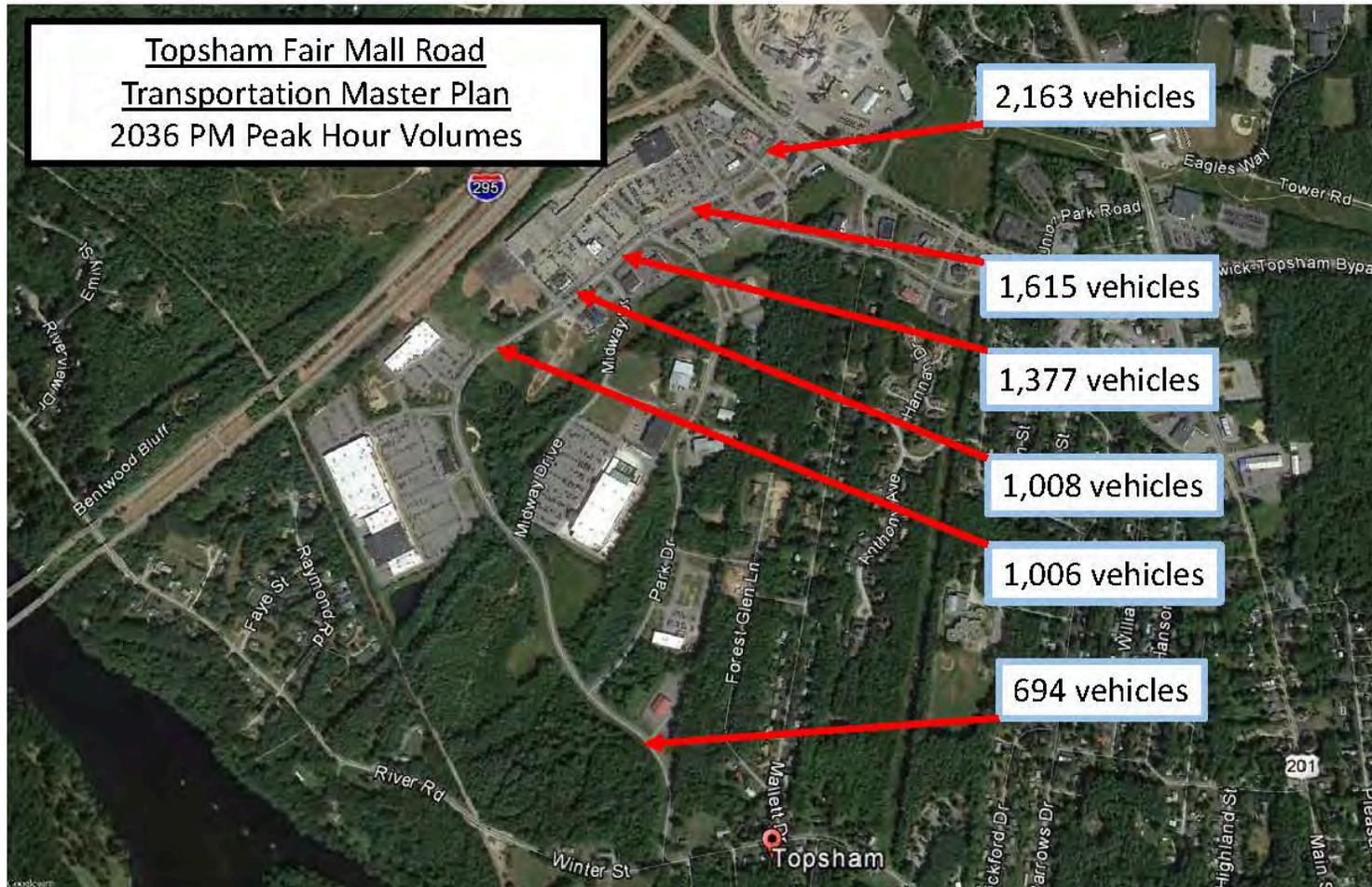


Figure 9 – Topsham Fair Mall Road Volume Change

Land Use

The study area is primarily zoned Mixed Use Commercial and can be divided into three patterns / periods of growth as shown on **Figure 10**. While the ROW is not a zone with specific design standards and designated land uses, it should be considered a place that is inviting and functional for all users. TFMR is the constant between the three different patterns of growth in the study area and while the design of the road is sensitive to capacity as well as existing and future growth projections, the right sizing and retrofitting of the road with a range of access management and streetscape elements will create more intuitive and safe circulation for all users. The recommended mobility and streetscape improvements will create a town street rather than the Route 1 scaled road serving commercial uses. By anticipating growth, the recommended design changes will ideally encourage future growth that respects the street frontage. In summary, streets are places that establish character through the thoughtful coordination of smart design decisions within and adjacent to the ROW.

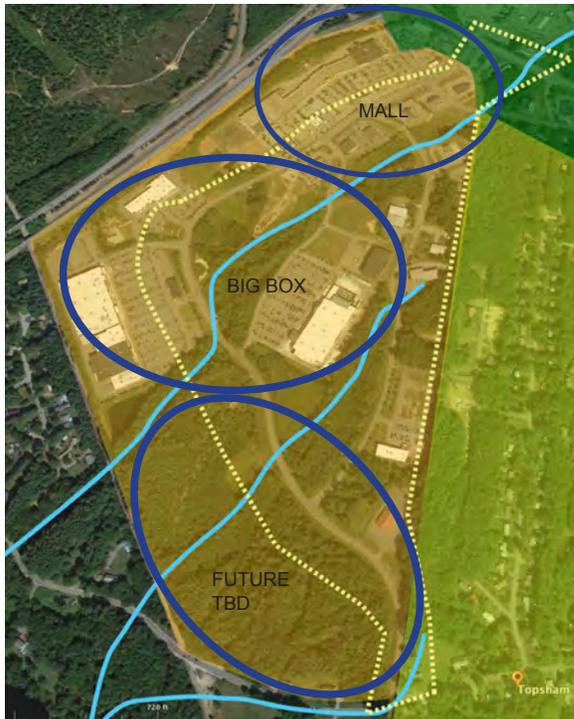


Figure 10 – Land Use Patterns

5.0 Concept Master Plan



Figure 11 – Concept Long-Term Master Plan

In addition to developing specific recommendation for the Topsham Fair Mall Road right-of-way, the Project Team worked with the stakeholders and community to create a long-term revitalization vision for legacy properties – the development originally served by Topsham Fair Mall Road. This area as shown on **Figure 11**, is the most complex segment of Topsham Fair Mall Road, has the highest potential for site retrofits and infill development, and is the area most in need of integrated mobility and streetscape improvements. The recommended improvements have the long-term goals of:

- Maintaining and improving circulation and capacity for all modes of travel
- Improving the economic sustainability of the TFM – particularly in regards to the competition of nearby retail centers
- Creating a place that capitalizes on the traffic volumes and visibility of the TFMR / Route 196 intersection
- Retrofitting TFMR as a town Street enhancing the adjacent development

The Concept Master Plan includes the following key features that are integrated both functionally and aesthetically with the recommended right-of-way improvements:

- Creating employee parking to the rear of the buildings to allow for more pedestrian amenities and landscape esplanades on the outside of the travel lanes
- Interparcel connections between developments to the south of TFMR. These connections improve connectivity in the area and allows for improved shared parking scenarios
- The continuation of the shared use path from Monument Place along the southern side of Topsham Fair Mail Road
- A “shared space street” running along the face of the Topsham Fair Mall buildings. The goal is to improve the pedestrian experience close to the existing buildings – while still maintaining access vehicles. It is envisioned that most vehicles using this existing circulation lane would shift to a new internal “street” approximately midway between TFMR and the buildings.
- A green space or common in the location of the current approach to the center of Topsham Fair Mall – aligning with the tower. This would guide vehicles to parking areas to either the east or west of the central approach. The common space could be utilized for seasonal food trucks, farmers’ markets, as well as community and pop up events.
- An enhanced “street” running parallel to TFMR as the primary access to the parking – as well as providing improved connectivity between developments. This internal street would be accessed at three defined intersections along TFMR to improve circulation throughout the study area.
- The creation of parking lot loops by to guide vehicles to the central parking lot “street” and move existing circulation away from the northern esplanade and sidewalk.

- Sidewalks along the northern side of TFMR as well as access points to the parking and buildings. There are currently no pedestrian amenities on the northern side of TFMR – including areas within parking lots. A sidewalk is also depicted on the eastern side of TFMR
- Esplanades along the northern and southern side of TFMR to create space for landscaping, street trees and sidewalks. The esplanades and street trees will also help mitigate stormwater impacts
- Strategically placed medians within the right-of-way improving access management, aesthetics, and pedestrian safety, while working to calm traffic and mitigate stormwater impacts.
- Mixed-use / multi-floor redevelopment defining the TFMR / Route 196 intersection as a gateway to Topsham, Topsham Fair Mall Road, and future development on the Crooker property. **See Figures 17 and 19.** This conceptual redevelopment includes a 15,000 SF expansion of Hannaford's.

5.0 Master Plan: Plans / Sections / Photosimulations

Based upon the goals and objective of the Plan, and guided by the concept plans, detailed concept design recommendations were identified for Topsham Fair Mall Road. The following details the recommendations by roadway section.

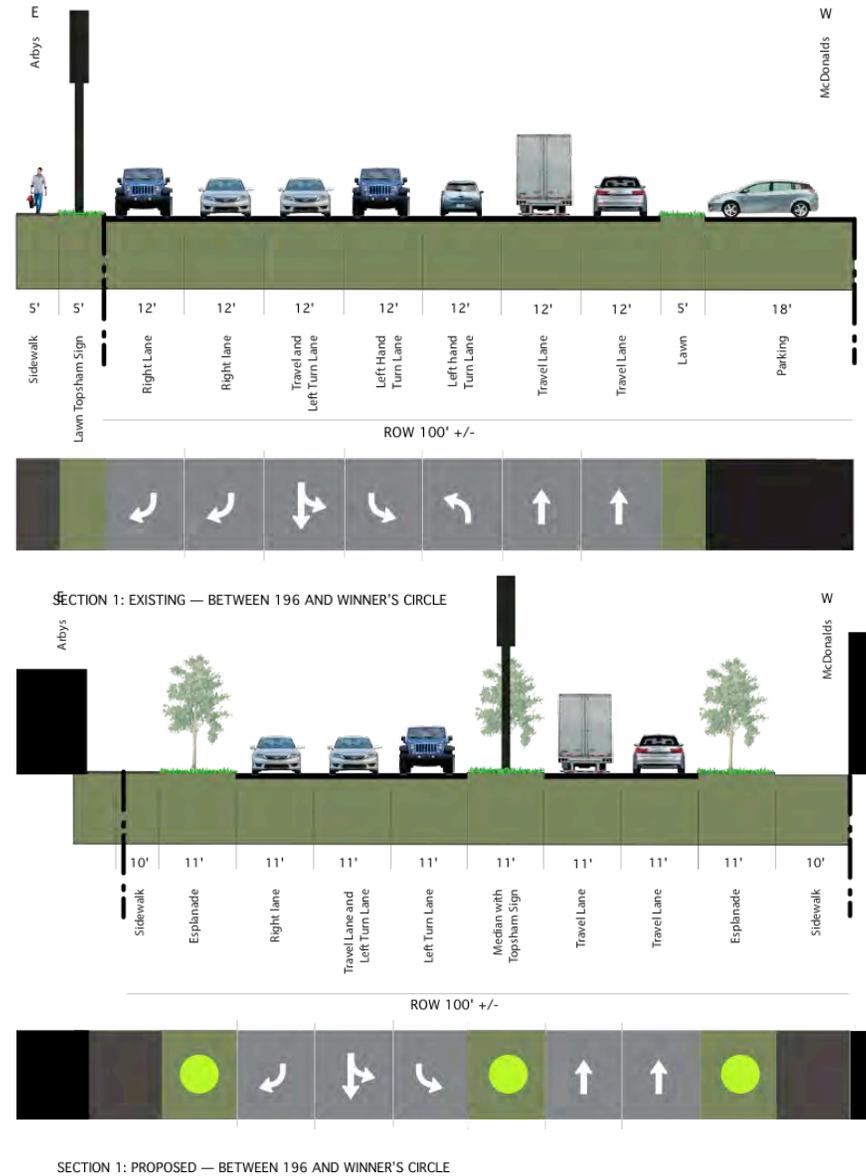
Route 196 to Monument Place

General Plan Recommendations:

- Eliminate one right-turn lane from Topsham Fair Mall Road onto Route 196. Upgrade southwest corner for full ADA compliance.
- Restrict movements in and out of Winner’s Circle and Paddock Lane when redevelopment occurs. Maintain access under current land use.
- Provide Crosswalks on all approaches at Route 196 and Winners Circle.
- Add a second left-turn lane from Hannaford’s Drive.
- Upgrade traffic signal at Monument Place
- Extend the Shared Use Path on the east side of Topsham Fair Mall Road toward the south.
- Bicycle lanes are proposed on Topsham Fair Mall Road south of Monument Place. A dedicated bicycle facility is not provided between Monument Place and Route 196. A wide sidewalk is provided.

General Cross-Section Recommendations:

- Provide three 11-foot lanes approaching Route 196
- Provide a 11-foot landscaped median
- Provide two 11-foot lanes entering Topsham Fair Mall
- Provide 10-foot sidewalks/share use facilities.
- Provide two 11-foot landscape esplanades.
- A new redesigned sign for the TFM should be located in the center median. Eventually, this sign can be located to infill development at the corners as marquee type signage integrated with the architecture.



- Future buildings should be located at the edge of sidewalk, regardless if the sidewalk is in the right-of-way or on private property.
- Street trees will reduce the heat island effect, calm traffic, improve the pedestrian experience, and mitigate stormwater impacts.

How the Plan Addresses Public Comments:

- Plan for expansion of Hannaford – *The plan includes adding intersection capacity at the Monument Drive intersection to accommodate future expansion.*
- Consider pedestrians crossing 196 - such as high school students – *The Plan includes crosswalks in conjunction with redevelopment of the Crooker site or a formal ADA compliant sidewalk on the north side of Route 196.*
- Winner’s Circle needs to remain open under current land use conditions. – *The Plan acknowledges the need to maintain Winner’s Circle under current land use conditions. Full closure is recommended at the time of future redevelopment.*
- Maintaining traffic capacity between Monument Place and Route 196 is appropriate. – *The Plan supports this objective.*
- Elimination of one right-turn lane onto Route 196 makes sense given use of Monument Drive. – *A review of traffic volumes and modeling supports this change.*
- Hannaford Supermarket is busy and enhancing traffic capacity should be considered. – *The Plan adds capacity to the Hannaford Drive/Monument Drive intersection.*
- Left turn into McDonald’s – *No changes are proposed for current conditions. Closure is proposed when redevelopment takes place.*
- Two lanes out, one lane in at Hannaford – *The plan includes this configuration.*

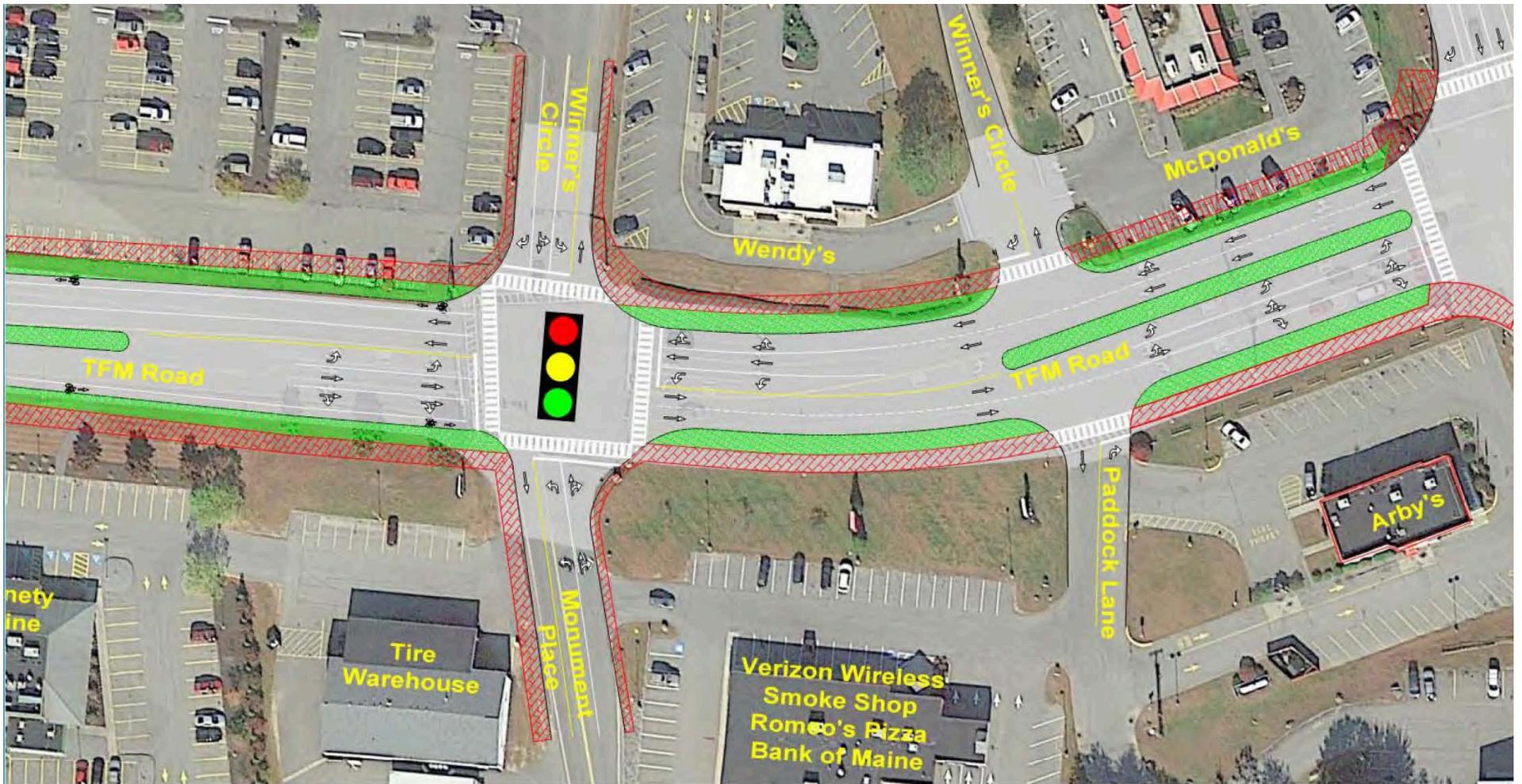


Figure 12 – Route 196 to Monument Place

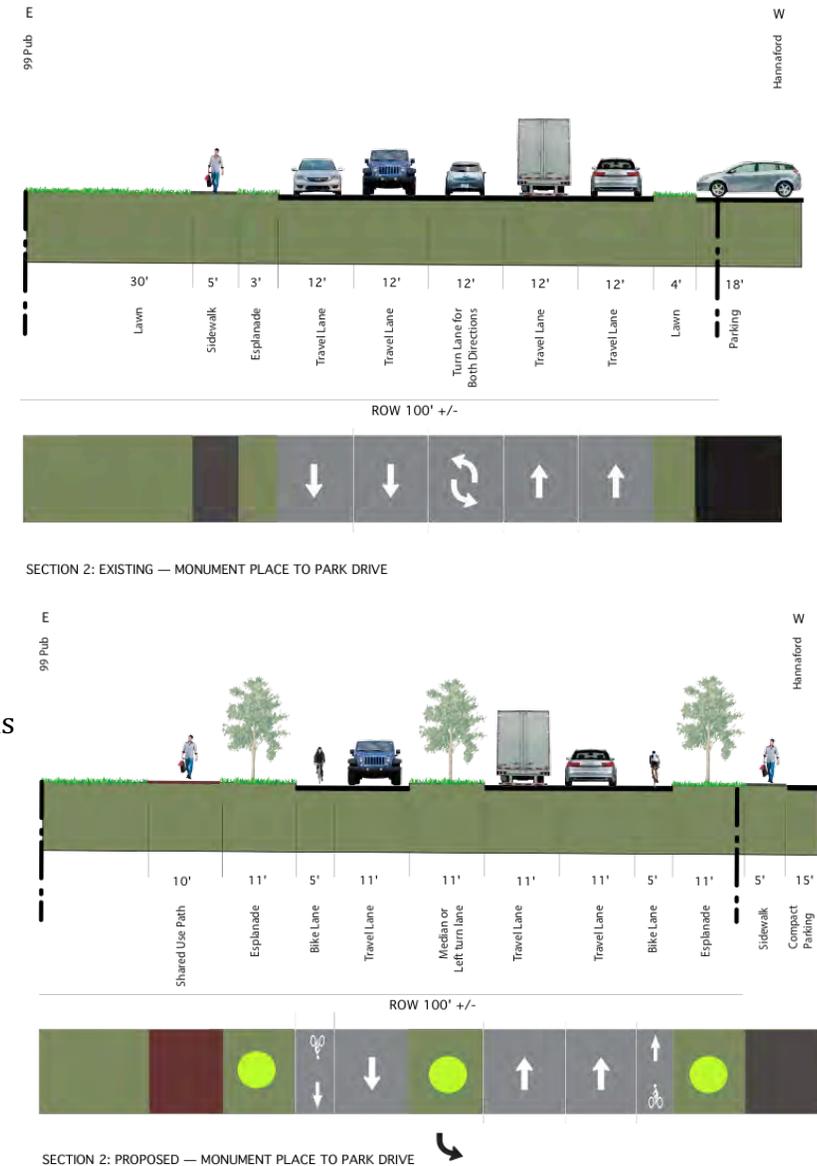
Monument Place to Park Drive

General Plan Recommendations:

- Construct a roundabout at the Park Drive intersection. Crosswalks are provided on all roundabout approaches.
- South of the Park Drive intersection Topsham Fair Mall Road becomes a three-lane section roadway. A consistent three-lane section will be provided through the Target Drive intersections with the exception of the stream crossing.
- North of Park Drive multiple lanes are proposed as Topsham Fair Mall Road transitions to a higher capacity facility.

General Cross-Section Recommendations:

- Two 11-foot travel lanes will be provided from Monument Place toward Park Drive. One lane will be dedicated for entry to the Mall.
- One 11-foot travel lane will be provided from Park Drive to Monument Place.
- An 11-foot landscape median will be provided and will become a left-turn lane at Monument Place.
- 5-foot bike lanes will be provided.
- A 10-foot shared use path will be provided on the east side. NOTE: this sidewalk can be reduced to five feet if it balances the need for a 11-foot wide esplanade and compact car parking.
- Further analysis is required to determine if compact car (8' x 15') spaces can be created along the west side in order to minimize impacts to surface parking.
- 11-foot wide esplanades between the curb line and sidewalk and shared use path.
- A 10-foot sidewalk will be provided on the west side.
- Street trees will reduce the heat island effect, calm traffic, improve the pedestrian experience, and mitigate stormwater impacts.



How the Plan Addresses Public Comments:

- Sidewalk on northeast side of Park Drive makes sense – *The Plan includes the noted sidewalk.*
- Consider a roundabout at one or more of the intersections – *A roundabout is proposed at the Park Drive intersection.*

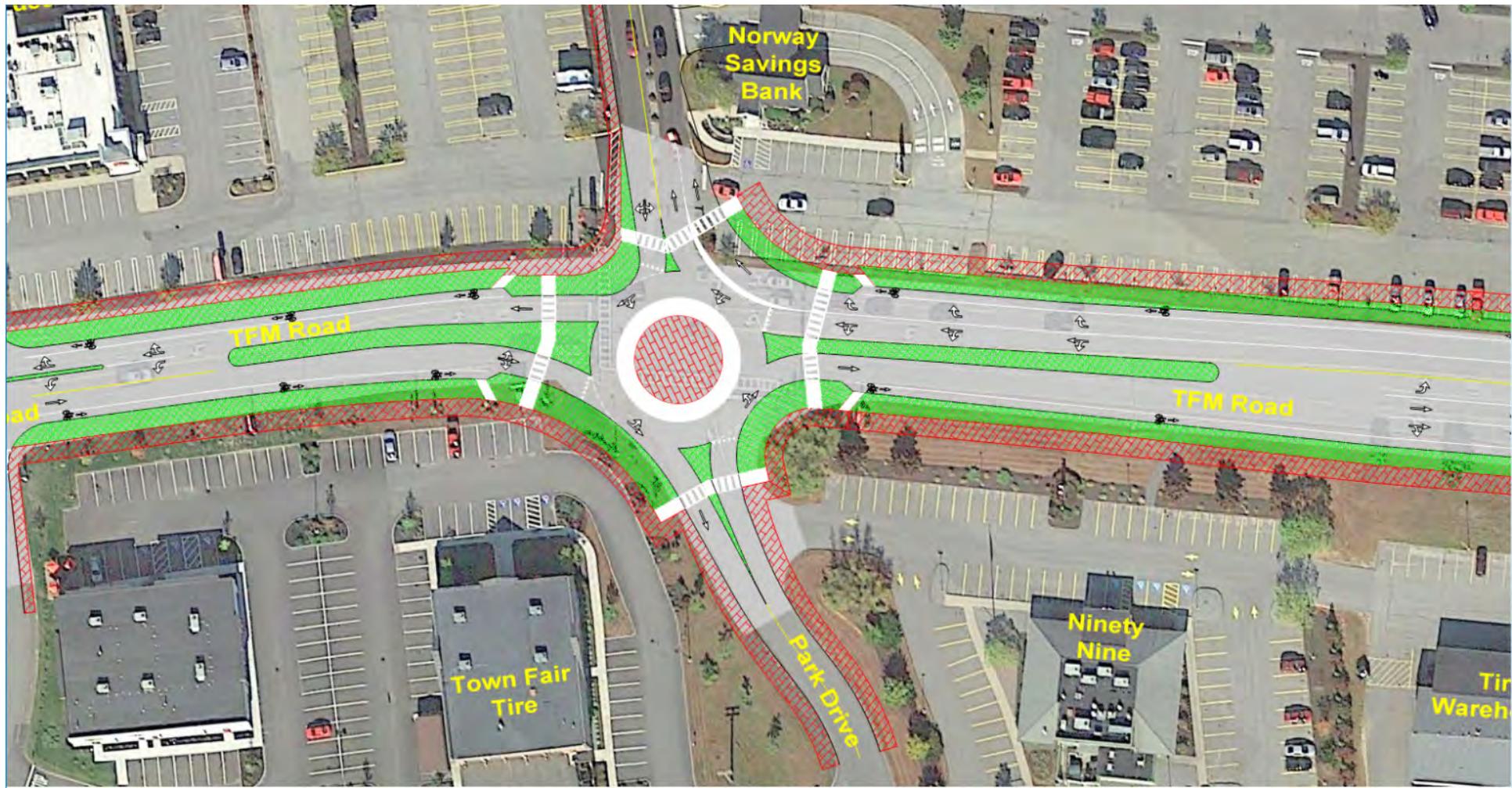


Figure 13 – Monument Place to Park Drive

Park Drive to Panera

General Plan Recommendations:

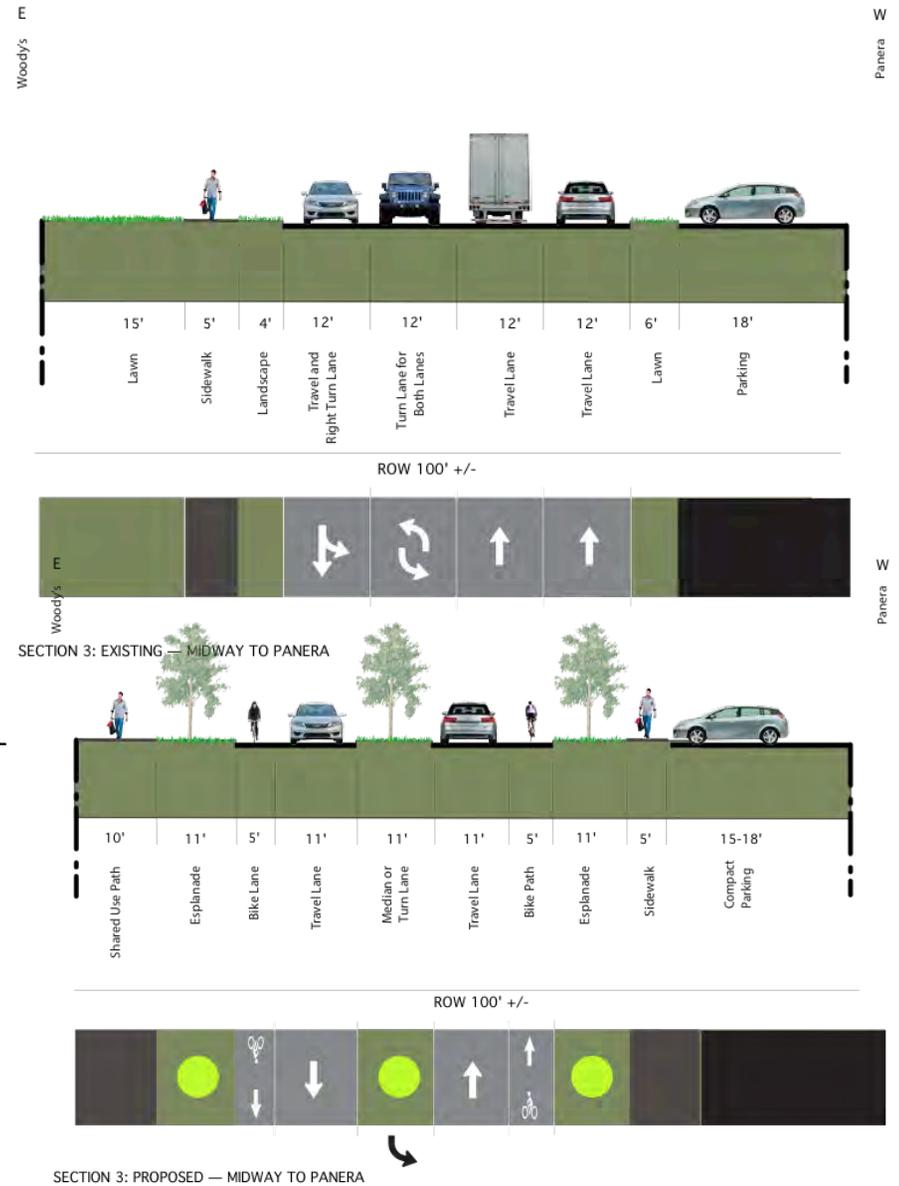
- Restrict turn movements at Midway drive with a raised landscape island. Left-turn movements will be prohibited from Midway Drive. Few vehicle make this movement, and use of the roundabout will allow for easy U-turn movements. Right-turn entry and exit movements will be permitted at the Mall Drive.
- An enhanced crosswalk is recommended across Topsham Fair Mall Road south of Midway Drive.

General Cross-Section Recommendations:

- One 11-foot travel lane will be provided in each direction
- An 11-foot landscape median will be provided and will become a left-turn lane at Panera.
- 5-foot bike lanes will be provided.
- A 10-foot shared use path will be provided on the east side. The path will cross on the south side of Panera for a future connection.
- A 10-foot sidewalk will be provided on the west side. NOTE: this sidewalk can be reduced to five feet if it balances the need for a 11-foot wide esplanade and compact car parking,
- Further analysis is required to determine if compact car (8' x 15') spaces can be created along the west side in order to minimize impacts to surface parking.
- 11-foot wide esplanades between the curb line and sidewalk and shared use path.
- Street trees will reduce the heat island effect, calm traffic, improve the pedestrian experience, and mitigate stormwater impacts.

How the Plan Addresses Public Comments:

- Extend shared used path through study area – *The plan extends the Path to the Panera Drive.*



- Create a pedestrian / vehicular connection from TFM to Best Buy site - *The plan includes a path that would lead to the area noted connection.*

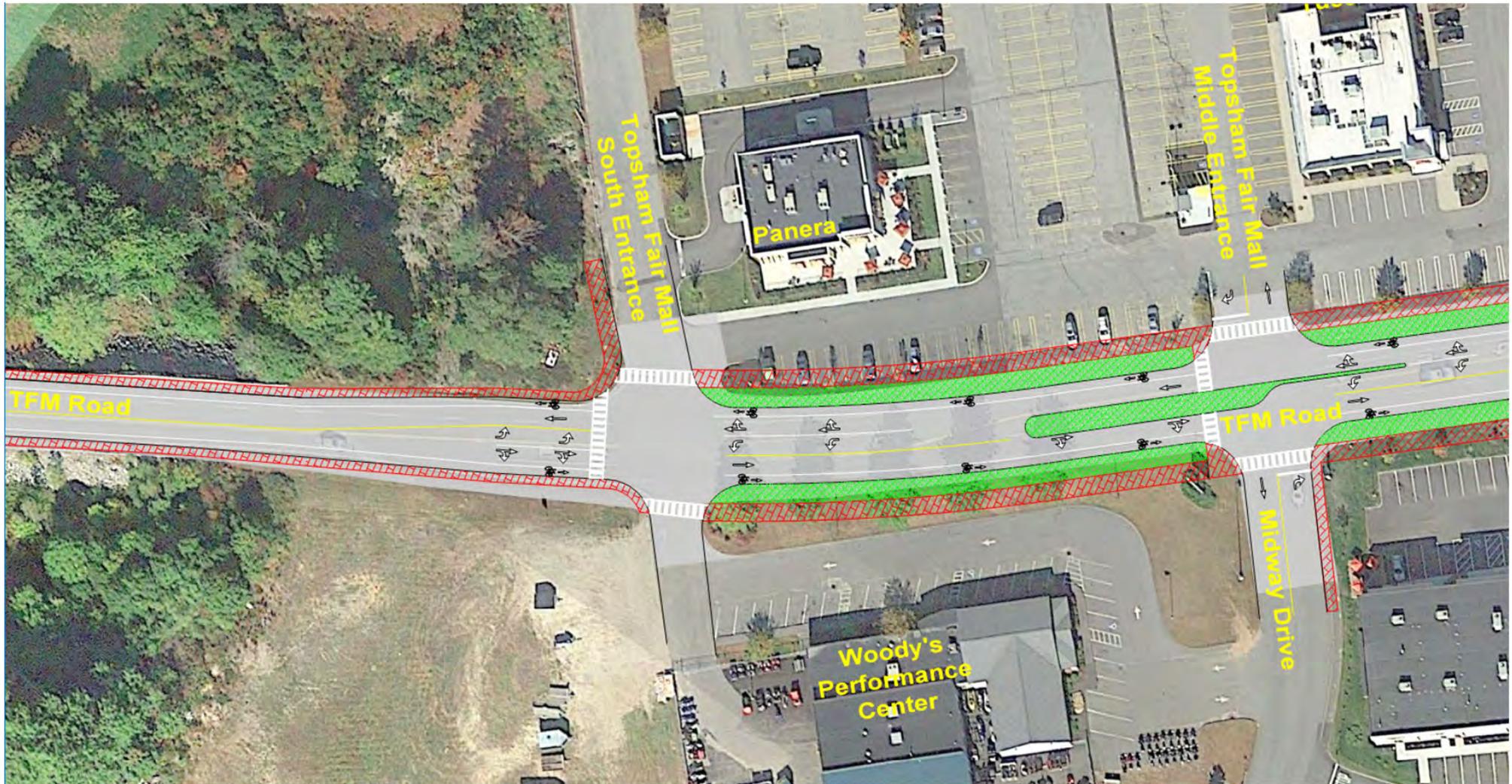


Figure 14 – Park Drive to Panera Drive

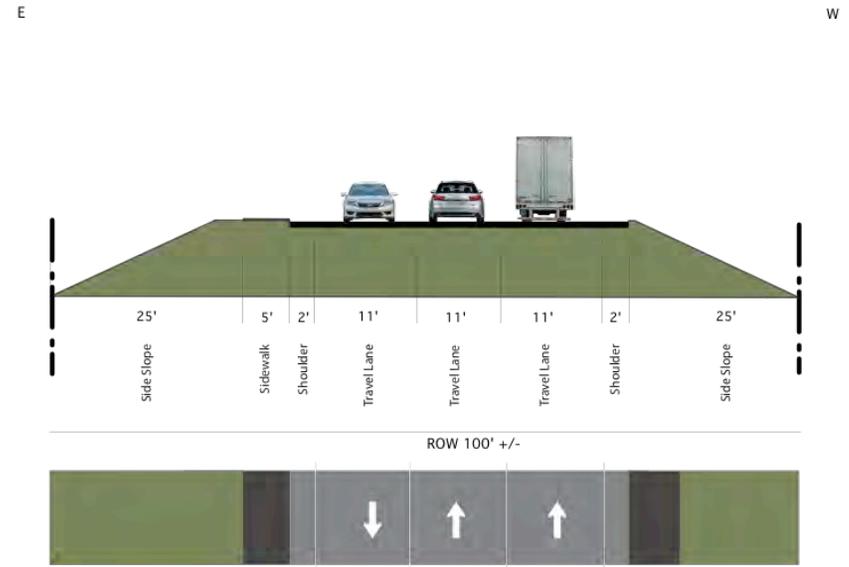
Panera to Target

General Plan Recommendations:

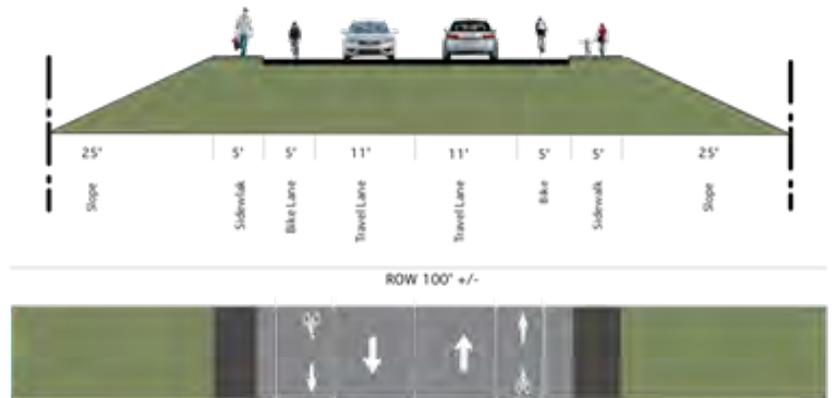
- The three-lane section transitions to a two-lane section across the stream and back to a three-lane section approaching former Best Buy driveway. Reallocation of the pavement width is proposed to allow for the construction of a sidewalk on the west side. No widening is required.
- A crosswalk is to be provided at former Best Buy Driveway with a proposed refuge island.

General Cross-Section Recommendations:

- Two 11-foot lanes are provided
- Two 5-foot bicycle lanes are provided
- Two 5-foot sidewalks are provided



SECTION 4: EXISTING — STREAM CROSSING



SECTION 4: PROPOSED — STREAM CROSSING



Figure 15 – Panera Drive to Target

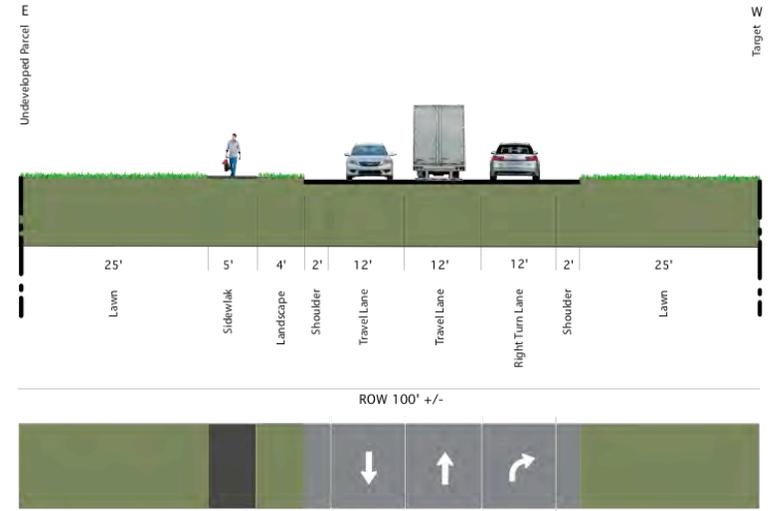
Target Drive Area

General Plan Recommendations:

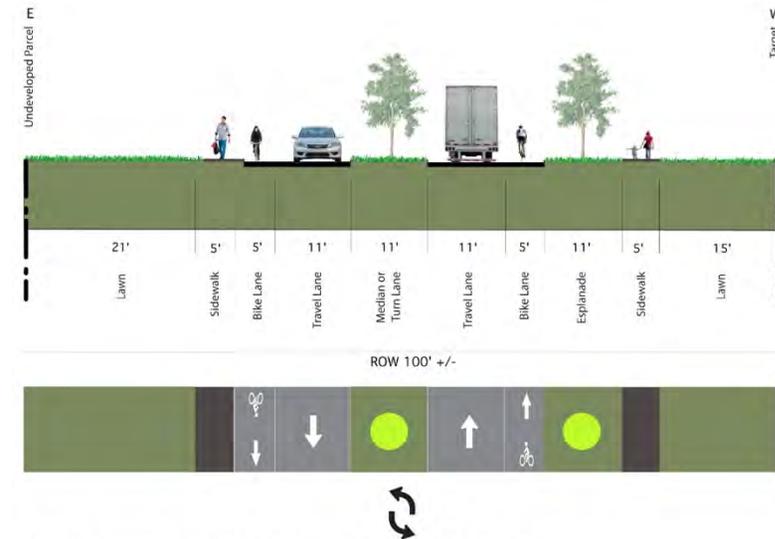
- Provide standard three-lane section with one lane in each direction and a
- A crosswalk is to be provide between the two Target Driveways.

General Cross-Section Recommendations:

- One 11-foot travel lane will be provided in each direction
- An 11-foot landscape median will be provided and will become a left-turn lane at driveways.
- 5-foot bike lanes will be provided.
- 5-foot sidewalks will be provided on both sides.
- Street trees will reduce the heat island effect, calm traffic, improve the pedestrian experience, and mitigate stormwater impacts.



SECTION 5: EXISTING — BETWEEN TARGET AND BED, BATH & BEYOND ENTRANCES



SECTION 5: PROPOSED — BETWEEN TARGET AND BED, BATH & BEYOND ENTRANCES

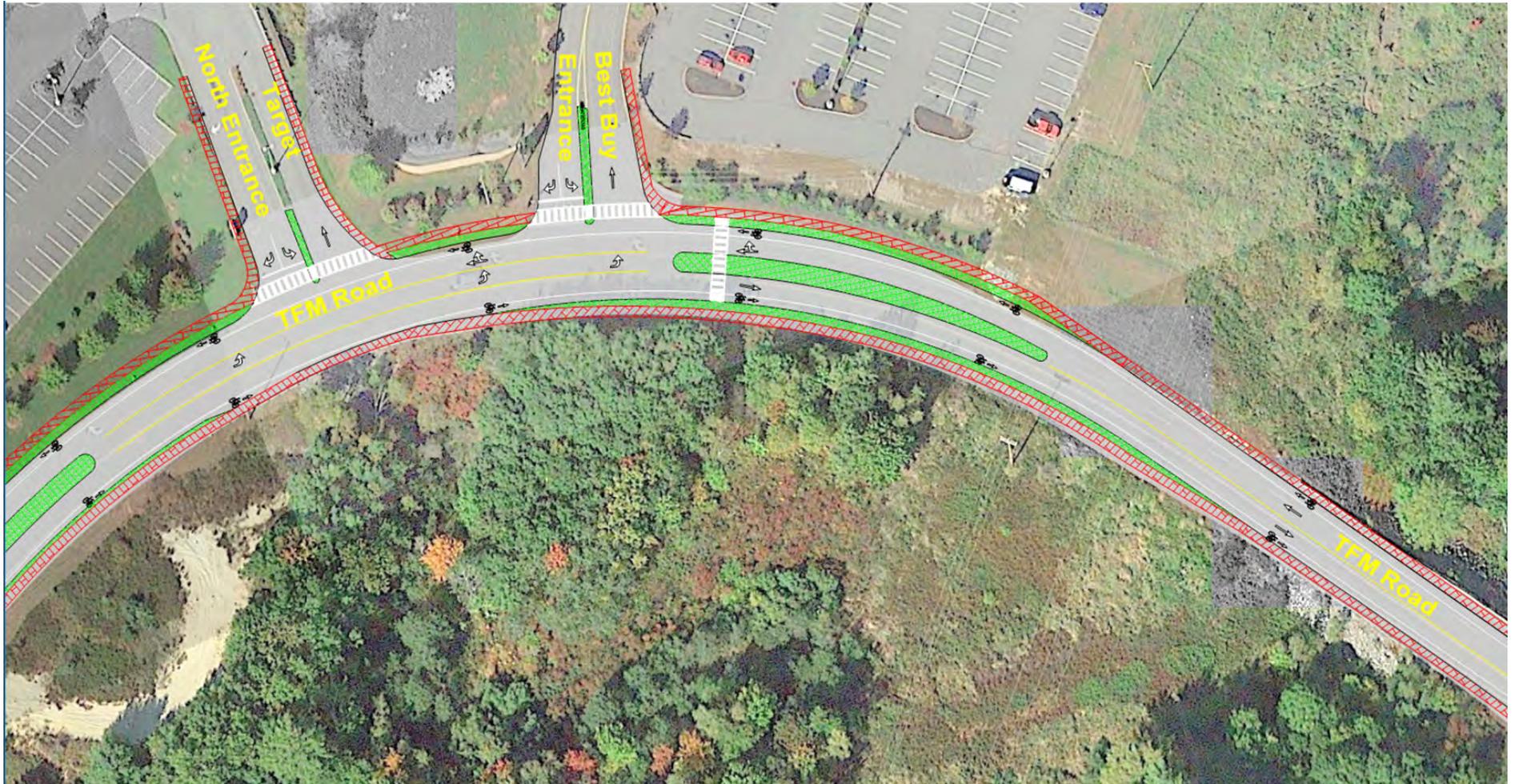


Figure 16 –Target Drive Area

Target Drives to Winter Street/River Road

No significant changes are proposed on this section of Topsham Fair Mall Road.

How the Plan Addressed Public Comments

- The intersection of TFMR and Winter Street needs additional analysis – *A review was conducted and it is recommended that sight distance obstructions be considered as well as improved wayfinding signage. An assessment of a flashing beacon should be conducted in the future.*

Photosimulations



Figure 17 – TFMR / Route 196 Existing Conditions



Figure 18 – TFMR / Route 196 Concept Build-Out



Figure 19: Existing Southern Approach to TFMR / Park Drive Intersection



Figure 20: Southern Approach to Proposed Roundabout at TFMR / Park Drive Intersection

Figures 17 – 20 are illustrative photosimulations of the proposed mobility and streetscape improvements. The before and after graphics depict the potential for “right sizing” TFMR through the more efficient use of the right-of-way, the introduction of user-friendly features such as medians and roundabouts, and the potential for redevelopment to better define the TFMR / Route 196 intersection as a gateway to Topsham as well as the TFM.

In addition, by increasing density at the high visibility intersection of TFMR / Route 196, there is the potential that future demand for commercial space can be accommodated in a way that has less impact on the urban impaired stream.

6.0 Concept Wayfinding Master Plan

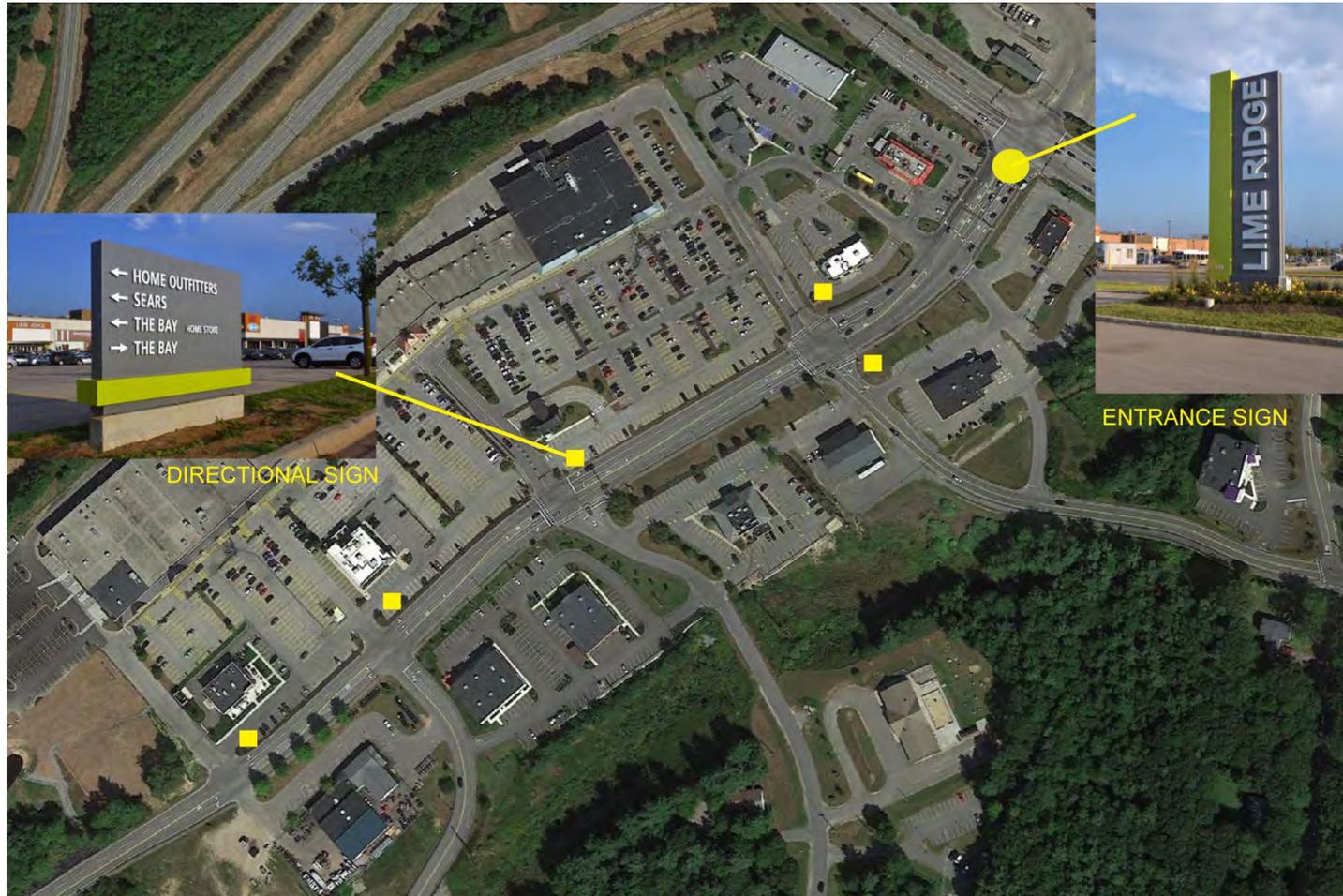


Figure 21 – Concept Wayfinding Master Plan

As mentioned previously, this Master Plan looks at TFMR in a block manner, similar to how an urban street is divided into blocks for purposes of economic development, connectivity, and wayfinding. To further reinforce the concept of blocks and street segments, a Concept Wayfinding Master Plan was developed as note in **Figure 21**.

To clarify circulation patterns and to help identify the location of business, a coordinated and hierarchal wayfinding system is recommended. A legible and well-design entrance sign is recommended at the TFMR / Route 196 intersection and then smaller directions signs are recommended on the western side before the four key intersection. In addition to the four signs on TFMR, a directional sign is recommended on Monument Place on the approach from the east. As noted earlier in and depicted on **Figure 11**, future redevelopment at the intersection of TFMR and 196 can integrate the entrance sign with the architecture as a marque type sign.

The exact number, location, and design of the wayfinding system requires further analysis, but these basic goals should be considered:

- Reinforce the block system
- Establish a uniform brand for the TFM
- Make circulation more intuitive for all users
- Allow for the eventual phasing out of freestanding signs for individual businesses
- Create a more attractive built environment while promoting economic development

7.0 Streetscape Components

A key aspect to redesigning the TFMR as a Complete Street is the careful integration of streetscape components to make address the needs of all users while addressing aesthetic, economic, and environmental concerns. These components are included in the cross-sections, photosimulations, and cost estimates. Streetscape elements include:

- Street trees
- LED pedestrian-scaled street lights
- Landscape medians
- Landscape esplanades
- Wayfinding
- Crosswalks
- Sidewalks

Recommended street trees include (typically planted 30' O.C.):

- *Acer x freemanii* 'Armstrong'
- *Acer rubrum*
- *Carpinus betulus* 'Fastigiata'
- *Ginkgo biloba* 'Princeton Sentry' (male)
- *Quercus palustris* 'Green Pillar'
- *Zelkova serrata* 'Green Vase'

It is the recommendation of this plan that the existing “shoebox” type parking lot and TFMR street lights be phased out and replaced with a LED pedestrian-scaled fixture such as the Halophane Charleston / Hallbrook as shown on the following page.



Charleston Aluminum Pole
 BC (Bishops Crook Crossarm)
 Hallbrook® W Bowl Glass



POLE ATTRIBUTES:

Description The lighting post shall be all aluminum, one-piece construction, with a classic tapered and fluted base design.

Materials The base and fluted tapered cast shaft shall be heavy wall, cast aluminum produced from certified ASTM 356.1 Ingot per ASTM B-179-95a or ASTM B26-95. The straight shaft shall be extruded from aluminum, ASTM 6061 alloy, heat treated to a T6 temper. The tapered shaft shall be extruded from aluminum ASTM 6063 alloy, spun to a tapered shape, then heat treated to a T6 temper. All hardware shall be tamper resistant stainless steel.

Construction The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity. The shaft shall be welded inside the base casting at the top of the access door, and externally where the shaft exits the base. All welding shall be per ANSI/AWS.

Dimensions The post shall be 'X'-XX" in height with a 12" or 16" diameter base. At the top of the post, an integral tenon with a transitional donut shall be provided for luminaire mounting.

Installation The post has an option to have four L-Type hot dip galvanized anchor bolts shipped with it. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

CROSSARM ATTRIBUTES:

DESCRIPTION The classic design of the Bishops Crook Style arm shall be tenon mounted, using a 1 1/2" NPT fitting for Luminaire mounting.

MATERIALS The Luminaire arm shall be 1-1/2" sch. 80 aluminum pipe (6061-T6 alloy). The mounting hub for the arm shall be 3" sch. 40 x 10" long, aluminum pipe (6061-T6 alloy). All hardware shall be stainless steel. The arm shall be heat-treated to a T6 condition after fabrication.

DIMENSIONS The single arms shall rise 54" and measure 30" from post center to Luminaire center, with a 1-1/2" NPT male fitting for Luminaire mounting. The twin arm shall rise 44" and span 66" from Luminaire center to Luminaire center. The bend in the arms shall have a radius of 15".

INSTALLATION The arm shall mount onto a 3" x 6" tall tenon and secured with six stainless steel set screws. **Requires P09 Tenon**

FIXTURE ATTRIBUTES:

The Hallbrook® Ext GlasWerks LED With Bowl Glass Series is a Euro styled luminaire of an LED prismatic glass optical assembly shielded by a decorative formed reflector and a top mounted cast aluminum electrical assembly with circumferential 1-1/12 inch reveal.

Optical Assembly: The optical assembly consists of a thermal resistant borosilicate glass lens mechanically held in a formed aluminum door frame. The door frame is attached to the spun cover with set screws. Light from the LED module is distributed by precisely molded optical interface to maximize utilization, uniformity and luminaire spacing. Multiple LED boards are available for symmetrical or asymmetric distribution and choice of wattage.

8.0 Relationship to Impaired Watershed Plan

The Town adopted the *Topsham Fair Mall Stream Watershed Based Plan* in 2014. Any investments in streetscape and mobility improvements should be cross-referenced with this Plan in order that funding and implementation opportunities are maximized. In general, the Master Plan works to retrofit TFMR as a more complete / green street. It is estimated that the redesign of TFMR reduces impervious surface by 15%. Additional measures such as the planting and maintenance of street trees will further mitigate stormwater impacts. While TFMR is a town street, impact fees from private development and redevelopment may be part of the funding strategies to implement both the TFMR Master Plan and in turn the Watershed Plan.

As depicted in the concept plan and the photosimulations, future infill development is more urban rather than suburban, thus minimizing impervious surface.

The two Plans complement each other. The Town has taken the initiative to plan for the “restoration” of the road and the stream and future opportunities to accomplish the goals of both Plans should be carefully coordinated.

9.0 Phasing and Implementation Plan

Implementation of improvements will occur over many years and thus the following implementation plan is suggested. Two time horizons have been identified for how project will take place. Short-term improvements include those that will likely occur over the next 5 years. Long-term improvements are those that will likely take place in a time frame of more than 5 years. It should be noted that development/redevelopment projects will play a significant role in how improvements along Topsham Fair Mall Road get implemented.

Short-Term Improvements (0 to 5 years)

- Remove Right-turn lane from Topsham Fair Mall Road onto Route 196 and upgrading the corner to meet ADA accessibility requirements.
- Upgrade the Monument Place intersection to include:
 - Adding capacity to the Hannaford Drive Approach
 - Replacing the traffic signal and coordinating with the Route 196 and Park Drive intersections
 - Providing crosswalks on all approaches
- Construct the Shared Use Path on the east side of Topsham Fair Mall Road from Monument Place to the Panera Intersection.
- Modify pavement markings on Topsham Fair Mall Road between the Panera intersection and the southernmost Target Driveway.
- Provide crosswalks on Topsham Fair Mall Road at Target and former Best Buy driveway

Long-Term Improvements (5+ Years)

- Implement Improvements between Monument Place and Route 196, including closure of Winner's Circle when redevelopment occurs.
- Implement improvements between Monument Place and Park Drive
- Modify parking/circulation in abutting parking lots. The majority of changes occurs on the west side when a sidewalk is constructed.
- Construct inter-parcel connections as redevelopment or new development occurs
- Construct roundabout at Park Drive Intersection

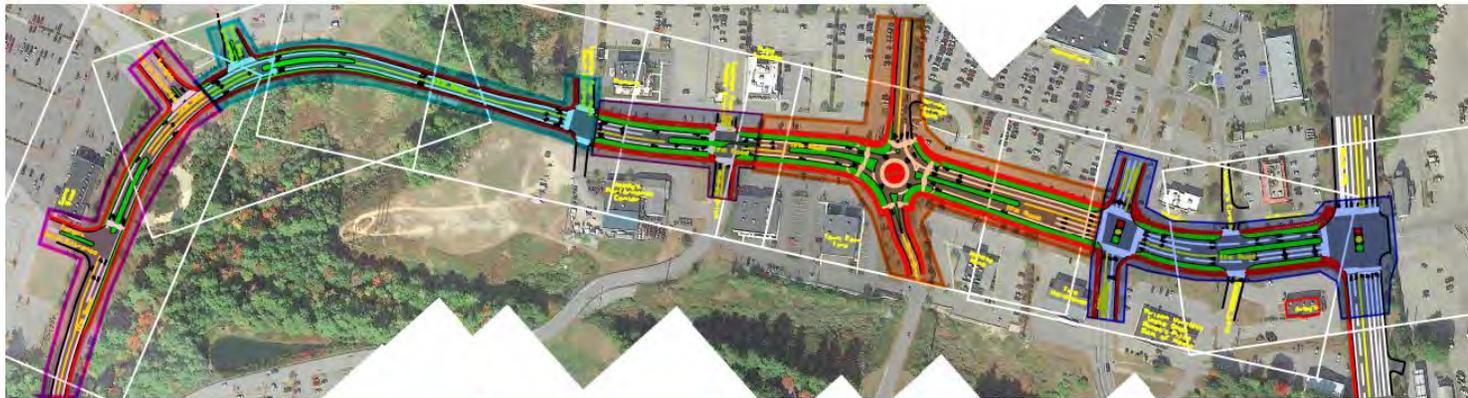
- Implement improvements between Park Drive and Panera, including restricting movements at Midway Drive
- Construct sidewalk on west side of Topsham Fair Mall Road between Panera and Target

10.0 Cost Estimates

Planning level implementation cost estimates are provided to accompany the recommendations previously provided. These estimate are broken up into sections of the corridor as noted in **Figure 22**. Items specific to each section are noted in that section, however all sections include the following:

- **Mobilization and Maintenance of Traffic:** Mobilization is the cost to organize and assemble the Contractor’s employees and equipment necessary to perform work. This includes bringing operating supplies to the site, establishing a field office if necessary and premiums for such things as insurance agreements. Maintenance of Traffic refers to the operations and devices used during construction to safely maintain the construction site for pedestrian, bicycle and vehicular traffic as well as construction staff. This can include devices such as construction signage, cones and barrels, flaggers, and police detail. For the purposes of this project, these items are combined and estimated to be 10% of each sections’ construction total.
- **Contingency:** Because this is a planning level study, only high cost items are included in the estimate. To account for unknown information that will be developed during engineering design and low cost items, a contingency is added. For the purposes of this project, these items are combined and estimated to be 25% of each sections’ construction total.
- **Design Cost:** This cost includes the additional engineering and investigations that must be concluded to complete design of the proposed improvements. These tasks can include survey, right of way investigations, drafting of recommendations, a detailed estimation of quantities and other engineering related tasks. For the purposes of this project, this is estimated to be approximately 15% of the total cost of construction, including Mobilization, Maintenance of Traffic, and Contingency.
- **Construction Engineering:** The final percentage cost applied to each section’s estimate is related to construction engineering. This cost includes the cost for the project to be administered, shop and other fabrication drawings, as well as resident engineers and inspectors. For the purposes of this project, this is estimated to be approximately 10% of the total cost of construction, including Mobilization, Maintenance of Traffic, and Contingency.

Planning Level Cost Analysis



Total Cost: Target Drive Area \$796,700	Total Cost: Panera to Target \$870,600	Total Cost: Park Drive to Panera \$796,200	Total Cost: Monument Place to Park Drive \$1,939,950	Total Cost: Route 196 to Monument Place \$1,338,900
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Note: Total Costs include the following additional costs: Mobilization/Maintenance of Traffic and Contingency (10% and 25% respectively) of the Construction Total, and an additional cost for Design and Construction Engineering (15% and 10% respectively). Please see accompanying tables for more information

Figure 22 – Topsham Fair Mall Road Segment Improvement Key

Topsham Fair Mall Road – Route 196 to Monument Place

The estimate in the following table specifically includes:

Eliminate Right-Turn Lane from Topsham Fair Mall Road to Route 196

- The addition of esplanade, bituminous sidewalk, and removing, resetting, and where necessary placing new granite curb from the southerly side of Paddock Lane to Route 196
- The addition of a detectable warning tile at the Arby's corner
- Pavement overlay from Paddock Lane/Winner's Circle to Route 196
- Upgrades to the traffic signal at Route 196 and Town Fair Mall Road
- Lighting and trees (Note: lights for the entirety of the corridor are estimated to be every 60 ft and trees every 30 ft)

Restrict Movements In and Out of Winner's Circle and Paddock Lane

- A new island with tree and low plantings

Provide Crosswalk on all Approaches at Route 196 and Winner's Circle

- The addition of esplanade along the southerly side from Monument Place to Paddock Lane and the northerly side from Winner's Circle to Route 196 (assuming that will be replaced)
- The addition of bituminous curb along the northerly side of Winner's Circle to Route 196 (we'll use existing sidewalk on the southerly side)
- The addition of bituminous curb along the southerly side between Monument Place and Paddock Lane
- The placement of granite curb the length in front of McDonald's
- Detectable warning tiles at the McDonald's corner, the Paddock Lane crossing, and the Winner's Circle northerly crossing
- Lighting and trees

Add a Second Left-Turn Lane from Hannaford's (Make all intersection improvements at this time)

- Removal of pavement, the addition of esplanade, and placement of bituminous curb and sidewalk between Winner's Circle (northerly and southerly)
- The addition of detectable warning tiles at the intersection of Winner's Circle, Monument Place, and Town Fair Mall Road
- A new signal

- Trees, low shrubs, and lighting
- Relocation of basins at the intersection
- Pavement overlay

Planning Level Cost Estimate for:	
Topsham Fair Mall Road – Route 196 to Monument Place	
Improvement	Approximate Cost
Eliminate Right-Turn Lane from Topsham Fair Mall Road to Route 196, Upgrade Southwest Corner to Full ADA Compliance	\$ 172,625.00
Restrict Movements In and Out of Winner's Circle and Paddock Lane with Redevelopment Occurs	\$ 100,200.00
Provide Crosswalks on all approaches at Route 196 and Winner's Circle	\$ 122,750.00
Add a second left-turn lane from Hannafords (and complete intersection improvements	\$ 397,850.00
Mobilization and MOT (10%)	\$ 79,342.50
Contingency (25%)	\$ 198,356.25
Construction Total	\$ 1,071,123.75
Design Cost (15%)	\$ 160,668.56
Construction Engineering (10%)	\$ 107,112.38
Total Cost	\$ 1,338,904.69

Topsham Fair Mall Road – Monument Place to Park Drive

The estimate in the following table specifically includes:

- Construction of a roundabout at the Park Drive intersection
- Crosswalks on all roundabout approaches
- Sidewalks back to Winner’s Circle
- Sidewalks down Park Drive and to the extents of the roundabout island
- Trees and lighting
- Relocation of basins at the intersection

Planning Level Cost Estimate for: Topsham Fair Mall Road – Monument Place to Park Drive	
Improvement	Approximate Cost
Construct a Roundabout at the Park Drive Intersection	\$ 1,149,600.00
Mobilization and MOT (10%)	\$ 114,960.00
Contingency (25%)	\$ 287,400.00
Construction Total	\$ 1,551,960.00
Design Cost (15%)	\$ 232,794.00
Construction Engineering (10%)	\$ 155,196.00
Total Cost	\$ 1,939,950.00

Topsham Fair Mall Road – Park Drive to Panera

The estimate in the following table specifically includes:

- A raised island
- Removal of pavement, the addition of esplanade, and bituminous sidewalk with bituminous curb on the north and south sides, north of Midway Drive to the roundabout island and south of Midway Drive to Panera
- Detectable warning tiles near Panera
- Trees and lighting
- Relocation of drainage basins
- Pavement overlay

Planning Level Cost Estimate for: Topsham Fair Mall Road – Park Drive to Panera	
Improvement	Approximate Cost
Construct sidewalks and restrict movements	\$ 471,820.00
Mobilization and MOT (10%)	\$ 47,182.00
Contingency (25%)	\$ 117,955.00
Construction Total	\$ 636,957.00
Design Cost (15%)	\$ 95,543.55
Construction Engineering (10%)	\$ 63,695.70
Total Cost	\$ 796,196.25

Topsham Fair Mall Road – Panera to Target

The estimate in the following table specifically includes:

- Removal of pavement, the addition of esplanade, and bituminous sidewalk with bituminous curb along the north and south sides of Town Fair Mall Road to the south entrance of the Best Buy Drive
- Detectable warning tile near the intersection of Best Buy
- Trees and Lighting
- Pavement overlay
- Crosswalk

Planning Level Cost Estimate for: Topsham Fair Mall Road – Panera to Target	
Improvement	Approximate Cost
Construct a Three-Lane Section with Sidewalks and Crosswalks	\$ 515,900.00
Mobilization and MOT (10%)	\$ 51,590.00
Contingency (25%)	\$ 128,975.00
Construction Total	\$ 696,465.00
Design Cost (15%)	\$ 104,469.75
Construction Engineering (10%)	\$ 69,646.50
Total Cost	\$ 870,581.25

Topsham Fair Mall Road – Target Drive Area

The estimate in the following table specifically includes:

- Removal of pavement on the south side at the Target entrance
- Bituminous sidewalk and curb with esplanade along the north and south sides of the Target entrances
- A new island
- Detectable warning devices
- Trees and lighting
- Pavement overly
- Relocation of basins
- A new crosswalk between the two Target driveways

Planning Level Cost Estimate for: Topsham Fair Mall Road – Target Drive Area	
Improvement	Approximate Cost
Construct a Three-Lane Section with Sidewalks, Island and Crosswalks	\$ 472,100.00
Mobilization and MOT (10%)	\$ 47,210.00
Contingency (25%)	\$ 118,025.00
Construction Total	\$ 637,335.00
Design Cost (15%)	\$ 95,600.25
Construction Engineering (10%)	\$ 63,733.50
Total Cost	\$ 796,668.75

11.0 Appendix

- Traffic / crash / future volumes analysis
- Public participation notes