

Lincoln Highway Streetscape Plan

Concept Plan

November 14, 2014

Introduction

This report provides a summary of conceptual transportation, land use, and design recommendations in the Lincoln Highway Streetscape Plan Study Area, which encompasses Lincoln Highway from Strasburg Pike to Pennsylvania Route 896. It is a draft and will continue to evolve as input is received from stakeholders. It is meant to inform the final Streetscape Plan, and we fully anticipate that the Advisory Committee will expand and help us to refine this list of recommendations. The concept plan is being presented as a series of planning principles to serve as the framework for the plan's recommendations. This memo will show how the planning principles have been applied to a series of proposed recommendations for roadway cross-sections and intersections and planning areas identified in the September stakeholder workshop.

Project Vision

Make Lincoln Highway an economically vibrant corridor that is safe, efficient, and beautiful for local residents and visitors.

Pedestrians attempting to cross Lincoln Highway



Planning Principles

1. Slow Traffic to the Speed Limit

The current 12-foot lane widths encourage higher speeds and only allow a nominal increase in capacity compared to narrower lanes. We are proposing that the inside (nearest the median) lanes be reduced to 11 feet. The outside (nearest the curb) lanes be reduced to 10 feet to serve automobile traffic and possibly signed to restrict truck traffic to the wider center lanes.

2. Buffer Sidewalks from Traffic

In order to create a safer pedestrian experience, we are proposing a minimum 4-foot landscaped buffer between sidewalk and curb. This is also the minimum dimension that could contain larger landscape items, including trees.

3. Provide Multi-modal Access along the Entire Corridor

We are proposing a 12-foot wide multi-use trail on the south side of the corridor. This was not discussed at the stakeholder workshop, but suggested in follow up comments. A review of the corridor found that it would be possible to construct such a facility on the south side of the road on a mix of existing right-of-way and private property. There would be a minimum 5-foot landscaped buffer from curb to buffer it from traffic. Where possible, that buffer could be increased. Where installation is not possible due to multiple driveways or a restricted right-of-way, it could be set further back into private property.

4. Consolidate Driveways

As part of a safer corridor access management plan, we are proposing to consolidate driveways wherever possible, focusing efforts on locations with high accident rates and near signalized intersections. Removing driveways from the corridor can also help reduce the need for a continuous left turn lane.

5. Remove Continuous Center Lane Where Not Needed

The corridor currently has a continuous center turn lane, even in places where no left turn is needed. We are proposing to remove it where it is not required and replace it with a mountable raised median. The resulting “excess” right-of-way would then be shifted to pedestrian and trail elements.

6. Increase Safety with Protected Left Turn Lanes

At high-accident intersections and areas large number of left turning movements, we are proposing protected (signaled) left turn lanes.

7. Maintain Consistent Through Lanes

In order to address safety issues caused by merging traffic and general user confusion, through lanes are to be maintained wherever possible. Particularly within the Funnel Character Area.

8. Integrate Signage and Wayfinding at All Scales

Signage and wayfinding will be scaled and located at appropriate locations for cars, bikes, and pedestrians.

9. Create Attractive, Functional Landscaping

Landscape guidelines will help create a cohesive and aesthetically pleasing look for the corridor frontage and contribute to stormwater management. Guidelines allow individual property owners to contribute to a larger coordinated landscape for the corridor.

10. Incorporate Stormwater Management Facilities into Frontage Design

In order to address future stormwater guidelines in the future, the plan should proactively highlight areas where it can be integrated in to the frontage and landscape design.

Right-of-Way Map

The width of the right-of-way (ROW) in the corridor varies significantly. Pedestrian and bike facility design options for sections that are less than 85 feet wide are somewhat limited. The map below illustrates existing ROW along the corridor.



Under 85'



**33% of the existing sidewalks on the corridor
are located **OUTSIDE** of the right-of-way.**



85' and Over

Proposed Roadway Sections

The illustration below shows the typical cross section of Lincoln Highway within the Study Area.



Proposed Roadway Cross Sections

The following pages illustrate proposed roadway sections that apply many of the planning principles into the Lincoln Highway corridor. To accommodate variation in ROW widths along the corridor, we have developed two primary road sections that would be applied to segments of the corridor based on ROW width, existing sidewalk conditions, and access management.

The proposed minimum widths for each facility (traffic lane, medians, sidewalk, etc.) within the sections are listed below. All proposed dimensions are within PennDOT and civil engineering design standards.

- Reduce center turn lane from 14 feet to 12 feet
- Reduce inside driving lane from 12 feet to 11 feet to continue to accommodate truck traffic
- Reduce outside driving lane from 12 feet to 10 feet to serve primarily car traffic
- Maintain 2- foot shoulder width from lane to curb
- Create a 4-foot minimum landscape buffer between curb and 6-foot wide sidewalk; this is the minimum size to plant a tree
- Create a 5-foot minimum landscape buffer between curb and 12-foot multi-use trail; this is the PennDOT minimum buffer for a multi-use trail
- Create a multi-use trail along the south side of the corridor.
- Where the multi-use trail is more than 25 feet from the curb, a standard 6-foot wide sidewalk could be added to the south side between the trail and curb.

Less than 85 Feet



With a total ROW of 85 feet or less, a sidewalk is possible, but options are limited until the ROW reaches 78 feet. At 72 feet in width, the narrowest section, only the north side of the street would have a sidewalk in the ROW. On the south side, all sidewalk and/or multi-use trail facilities would need to be located on private property.

As ROW increases to 78 feet, buffered sidewalks would be possible along both sides of the street. However, the preferred option – a multi-use trail that could serve both bicycles and pedestrians on the corridor itself, would still require private property to meet its full width. As the ROW increases up to 84 feet, more of the trail could be built inside the ROW.

85 or More Feet

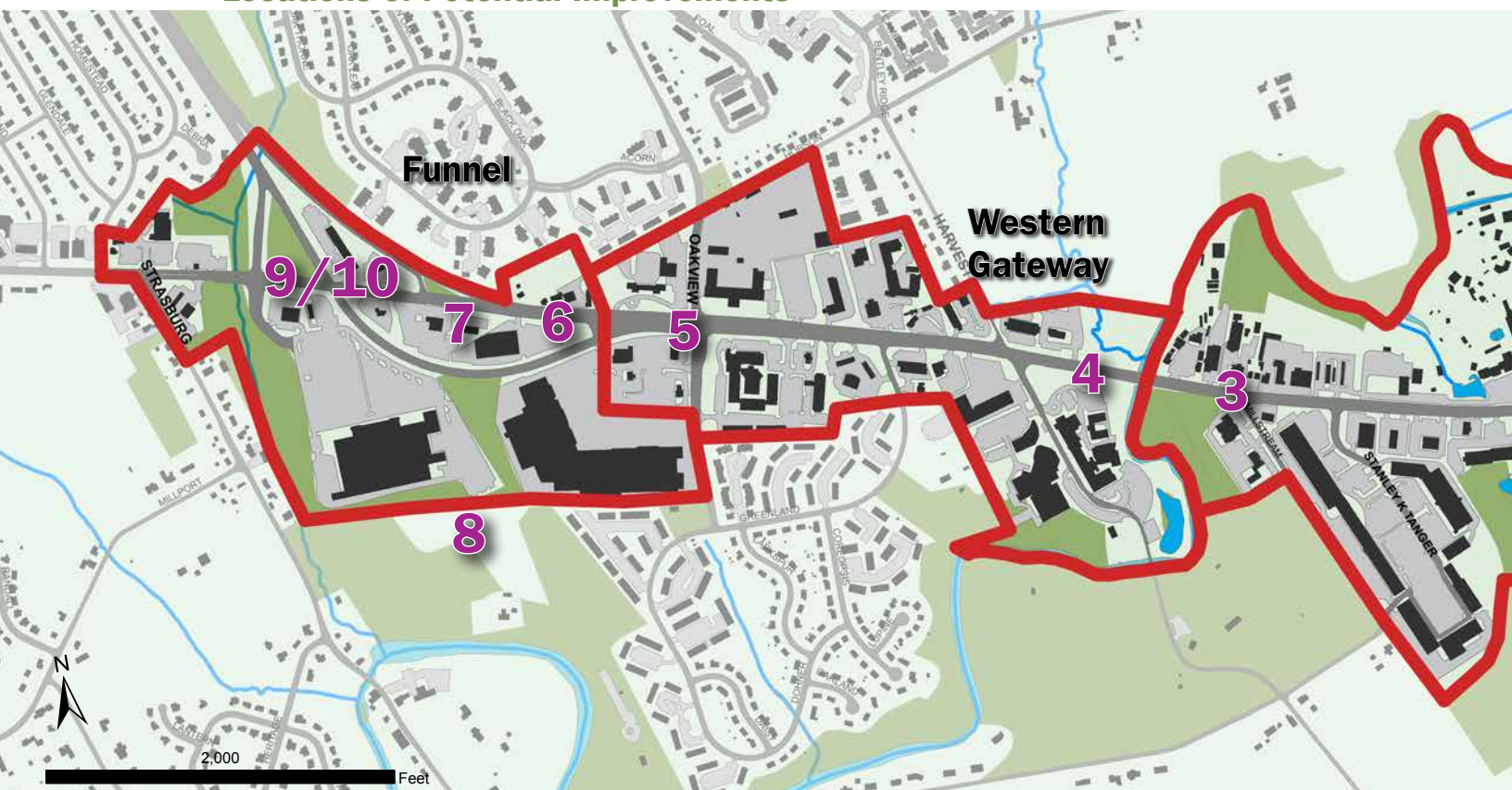


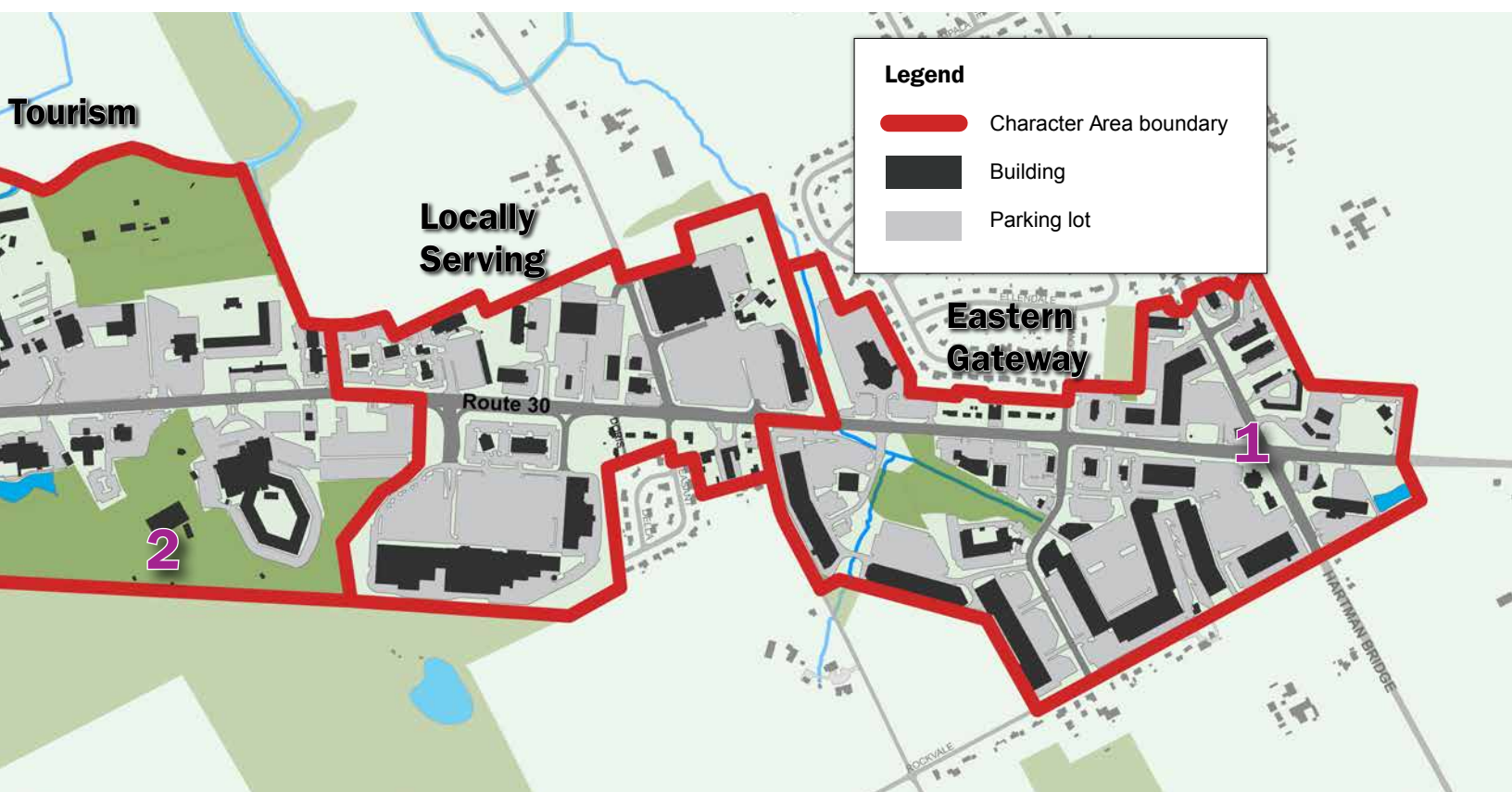
At 85 feet, the cross section can now contain all the elements of the roadway including the full width of the buffered multi-use trail on the south side of the road. As the ROW increases beyond 85 feet, space can be added to the landscape buffers.

Stakeholder Workshop Feedback

The following recommendations were presented at a stakeholder workshop on September 23, 2014. Potential improvements were broken down by character area. Meeting participants reviewed and provided input on key concepts, including lane reconfigurations, locations for streetscaping improvements and signage, and potential new road connections. Ideas and input from the workshop has been broken down into 10 key recommendations to take forward, shown on the map below.

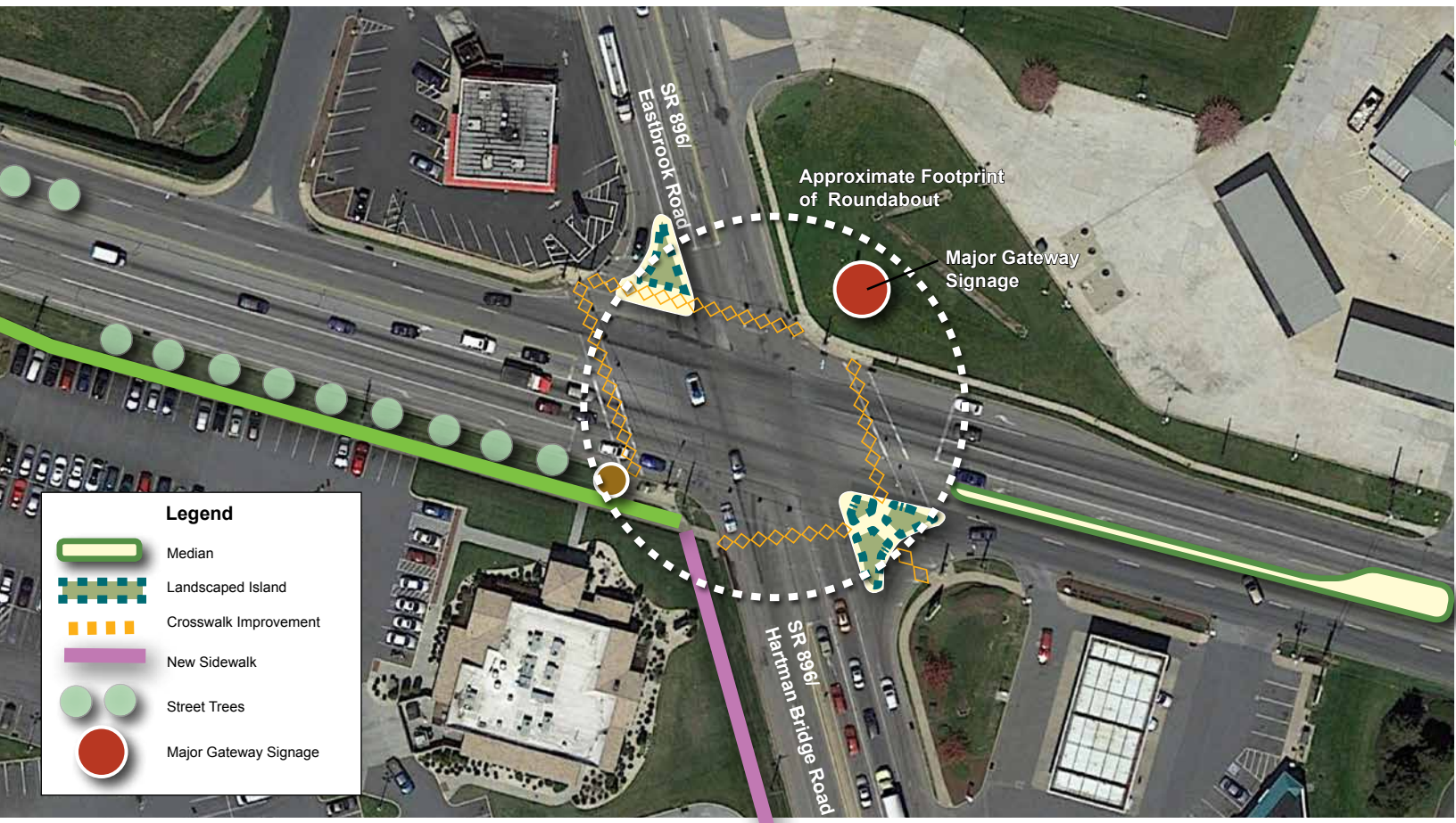
Locations of Potential Improvements





1. Eastern Gateway at Route 896

Eastern Gateway Character Area



The intersection of Route 896 and Lincoln Highway is the major gateway to the corridor from the east. At the stakeholder workshop, we suggested potential improvements including decorative crosswalks, gateway signage, street trees, and landscaped islands.

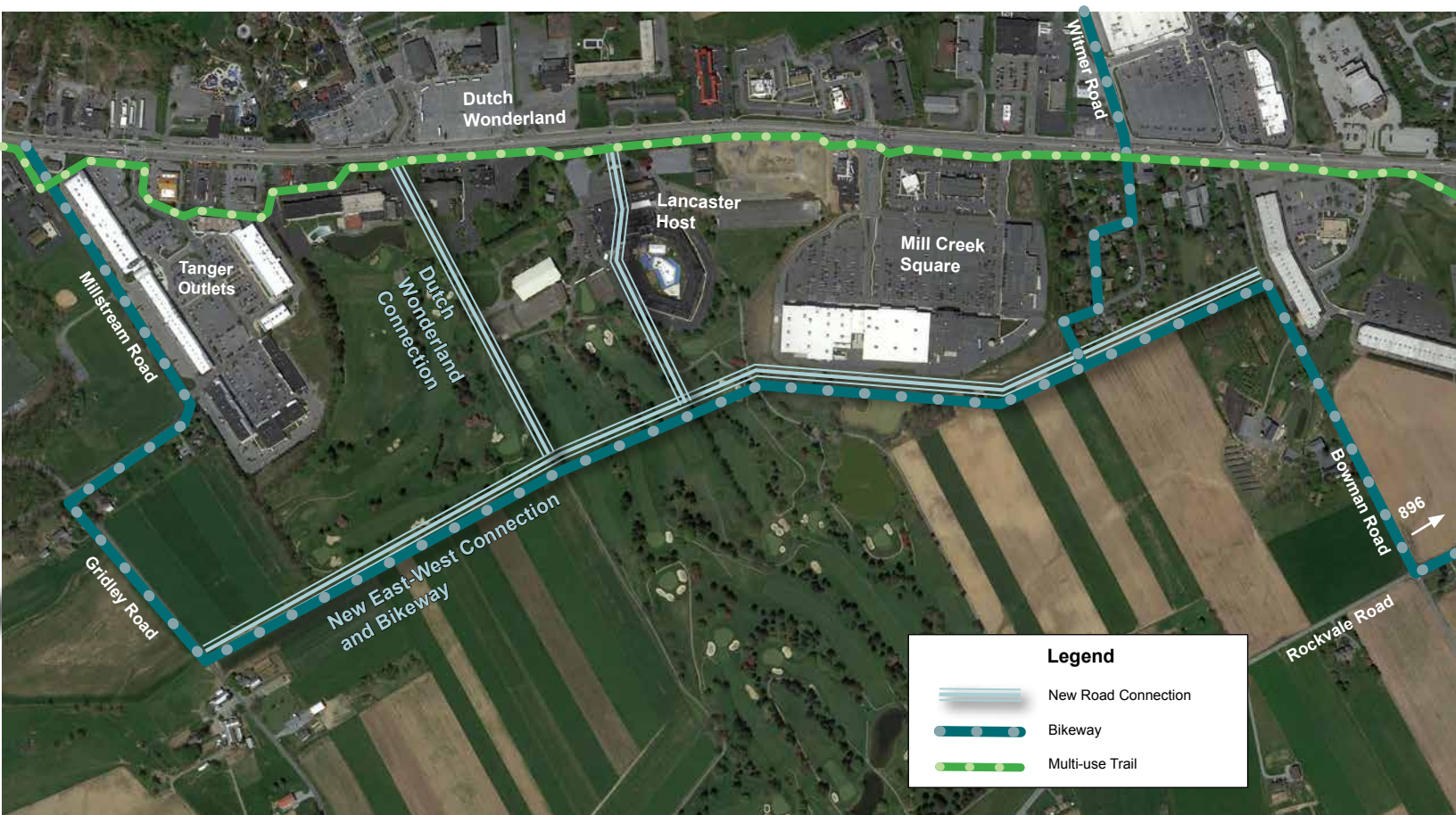
Participants' general response was that the northeast corner of the intersection was a prime location for some sort of vertical gateway feature. It would be visible from the east as well from the north and south approaching from Route 896. Landscaped islands would be a good way to reduce the confusion of the skewed intersection and help protect pedestrians as they cross. Crosswalk treatments and the pedestrian amenities at this intersection should be nicer than other typical intersections, to help emphasize its importance as a first impression for many visitors.

A roundabout option was suggested in the Phase 1 planning process. The primary advantages for roundabouts are a reduction in auto accidents and efficiency increases by keeping traffic moving. At Route 896 a roundabout would slightly increase the Level of Service (LOS) from a D to a C for the peak hour on Saturdays. The primary concerns for the roundabout at this location are that it would need to be very large and would make pedestrian crossing more difficult because traffic would typically not stop. A two-lane roundabout would have an outside diameter (curb-to-curb) of approximately 180 feet. This would necessitate the acquisition of additional right-of-way, making this alternative more costly, contentious, and long-term.

With the Steering Committee's approval, we will drop the roundabout from consideration and develop design details for the intersection improvements discussed at the stakeholder workshop. We will integrate the designs into an illustrative plan for a second stakeholder design workshop in January or early February.

2. New Road Connections

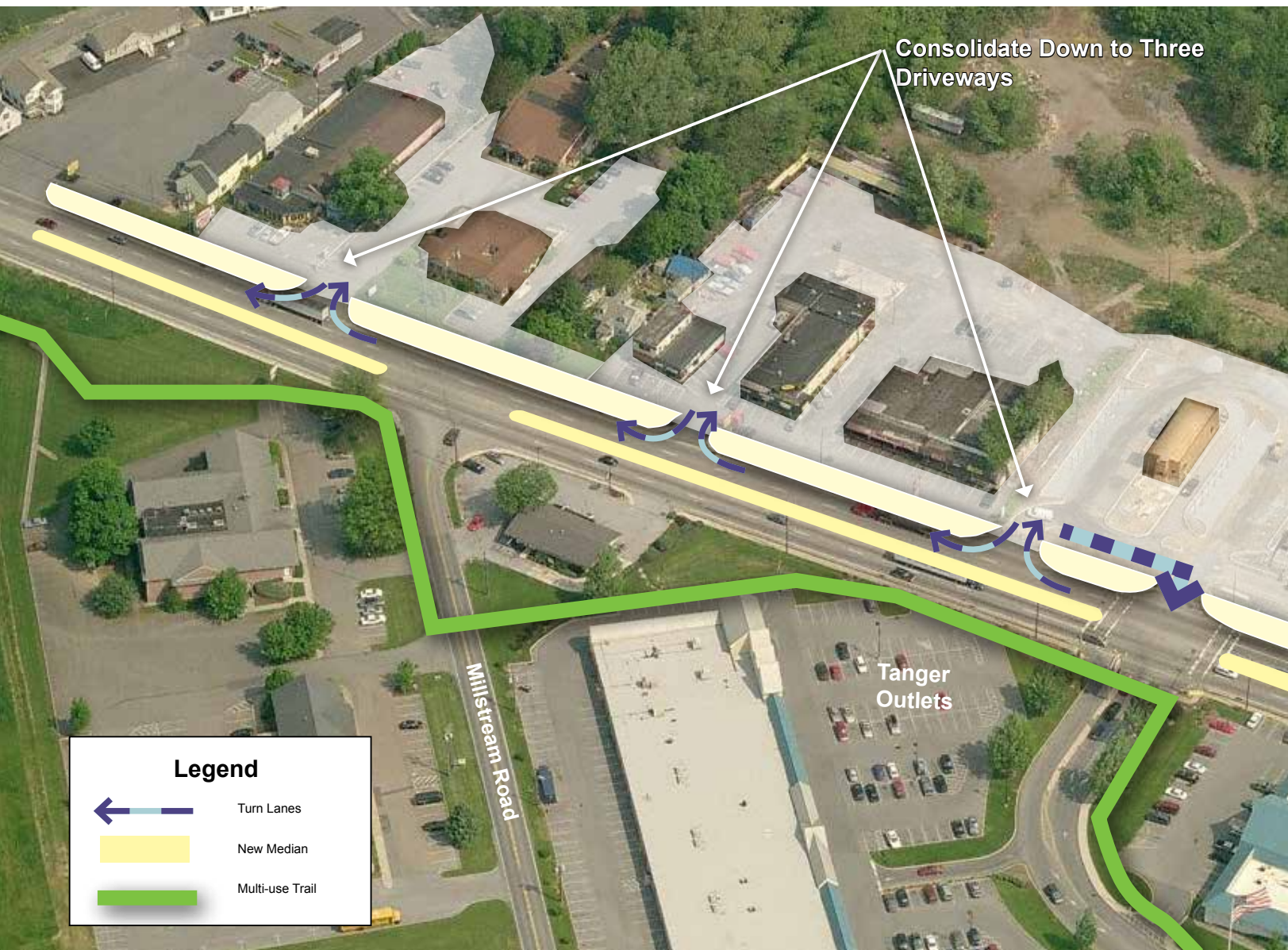
Local Serving and Tourism Character Areas



In the Local Serving and Tourism Character Areas new roadway connections would improve local access, relieve traffic pressures on Lincoln Highway, and provide on and off-highway bike and buggy access. We are proposing a new east-west connection immediately south of Lincoln Highway that would connect Gridley and Bowman Roads to provide a safer local route for cars, bikes, buggies, and pedestrians. This road would form the spine of a new regional bikeway and would tie back to Lincoln Highway at Dutch Wonderland and the Lancaster Host. The new connections should be a simple two-lane road with bike and pedestrian facilities. With the Steering Committee's approval, we will develop this concept further for a second stakeholder design workshop in January or early February.

3. Millstream Road and Driveway Consolidation

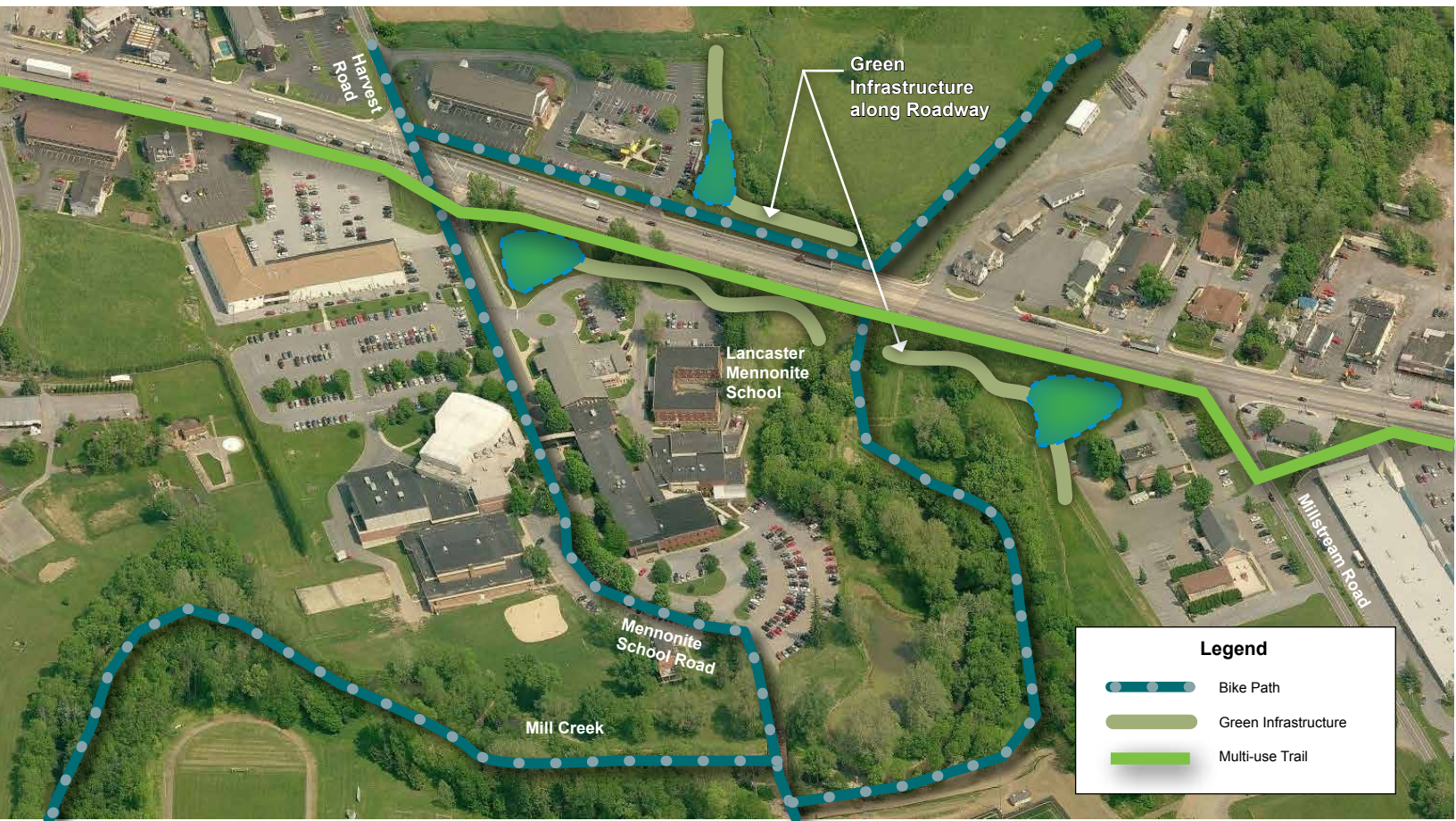
Tourism Character Area



The stretch of smaller businesses located between the Mill Creek Bridge and the Tanger Drive Intersection contains numerous individual driveways, which have created a “hot-spot” of mid-block left turn accidents. This area has the highest concentration of mid-block accidents on the corridor. We are recommending consolidating driveways in this section to reduce conflicts. Essentially, this zone can be divided into a catchment area served by three right-in/right-out driveways and access to the signalized intersection across from Tanger Outlets, which would reduce the number of left turn entry points. Installation of a mountable median could further improve access management and safety in the area. With the Steering Committee’s approval, we will develop this concept further for a second stakeholder design workshop in January or early February.

4. Multi-modal Access at Lancaster Mennonite School

Western Gateway Character Area



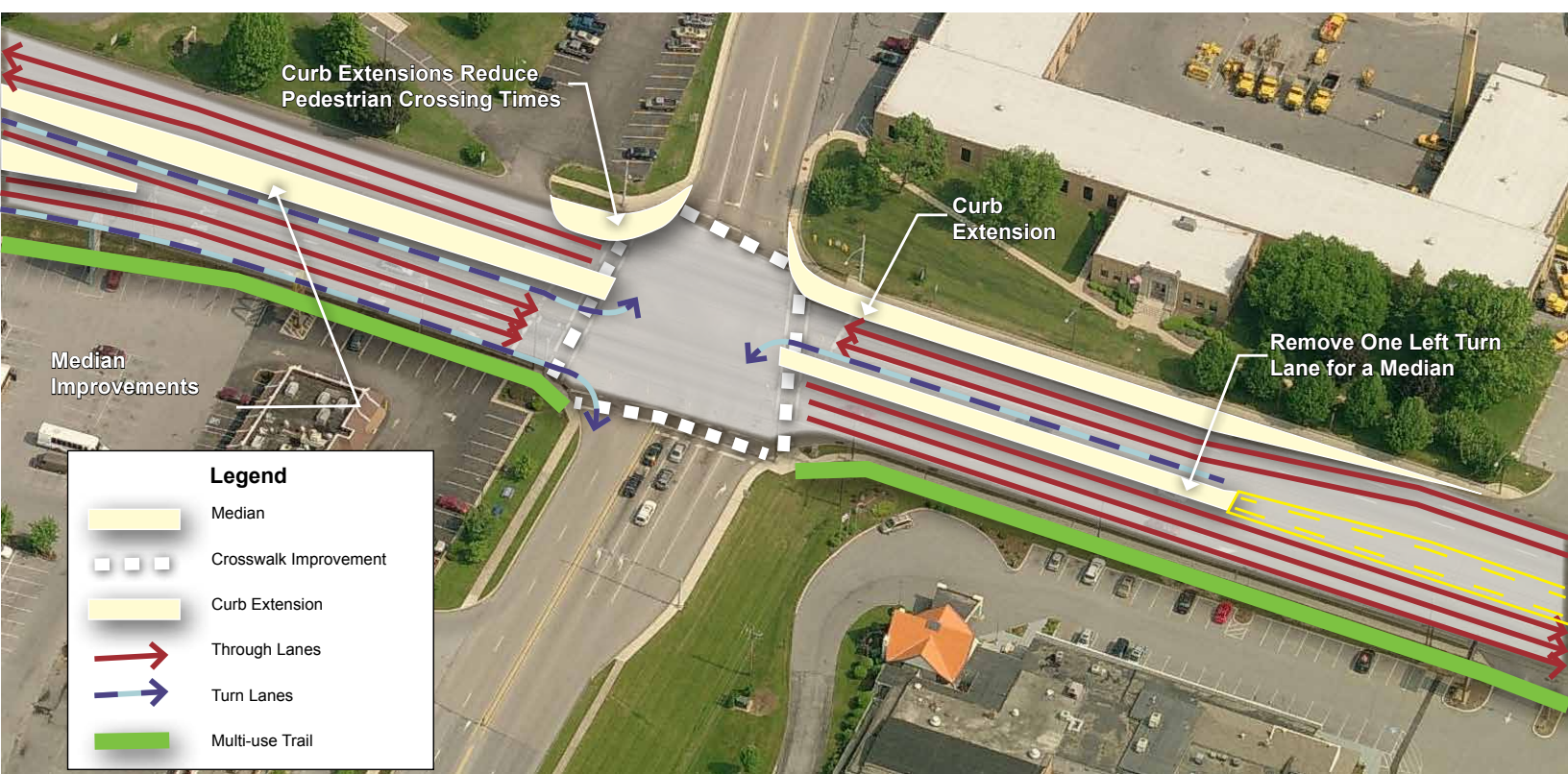
We are recommending a bikeway along Mill Creek to tie into Lincoln Highway at the Lancaster Mennonite School and Tanger Outlets. The Lancaster Mennonite School and Mill Creek are significant regional assets that would benefit greatly from improved bicycle and pedestrian access. This map above illustrates potential bikeway connections and green infrastructure improvements that were presented at the stakeholder workshop. At the workshop, participants:

- Had concerns about security and access through the Lancaster Mennonite School, and proposed an alternate route from Greenland Drive along the edge of the property to Mill Creek
- Suggested stormwater features and additional landscaping in front of the school that could be used for water education
- Proposed narrowing of the roadway at the Mill Creek Bridge to allow for a major expansion of the sidewalk and entry to the school. The narrowing of the roadway would be accomplished through the removal of the center turn lane over the bridge

With the Steering Committee's approval, we will develop the concept outlined above, including Steering Committee recommendations, further for a second stakeholder design workshop in January or early February.

5. Oakview Intersection Improvements

Western Gateway Character Area



The Oakview Road intersection is a major pedestrian node, but is currently very difficult to cross due to the sheer number of lanes coming into the intersection from the Route 30 Bypass. There are also two dedicated left turn lanes from Lincoln Highway to southbound Oakview Road, which are not necessary based on current traffic counts. An option for improving this intersection involves narrowing the width of the intersection by installing curb bump-outs at the northern corners. This would reduce the pedestrian crossing distance, calm traffic, and encourage trucks toward the center of the roadway and away from pedestrians on the sidewalk. Curb extensions could be coupled with the installation of a mountable median in place of the existing second left turn lane from Lincoln Highway onto Oakview Road. Landscaping and streetscaping improvements around the intersection would also improve the experience for all users.

At the stakeholder workshop two potential alternatives for reconfiguration of the Oakview Road intersection were presented. The first alternative is described above, and was preferred by participants. The other alternative, not shown, converted the second turn lane into the median, but did not include curb bump-outs.

Stakeholders identified the Oakview Road intersection as a high priority pedestrian area and recommended that higher quality decorative materials be used in crosswalks, landscaping, street furniture, and transit amenities to reinforce the intersection's identity as a significant place. Due to the high volume of truck traffic, all materials used in the roadway itself for crosswalks and other markings need to be durable to reduce future maintenance costs.

With the approval from the Steering Committee, we will review potential materials for intersection improvements and incorporate the proposed intersection configuration into the overall corridor illustrative plan for a second stakeholder design workshop in January or early February.

6. New Lane Configuration between Oakview Road and Strasburg Pike

Funnel Character Area



A large share of the accidents that occur on the corridor are in close proximity to the on- and off-ramps for the 30 Bypass. One potential safety improvement discussed at the workshop includes the reconfiguration of the roadway with narrower lanes to allow for a larger median, and the introduction of dedicated left turn lanes at Strasburg Pike and the Bypass entrance. This would create a clearer path for through traffic to take, better delineated from turning traffic. Streetscaping improvements and landscaping would also reinforce this area's identity as a major gateway.

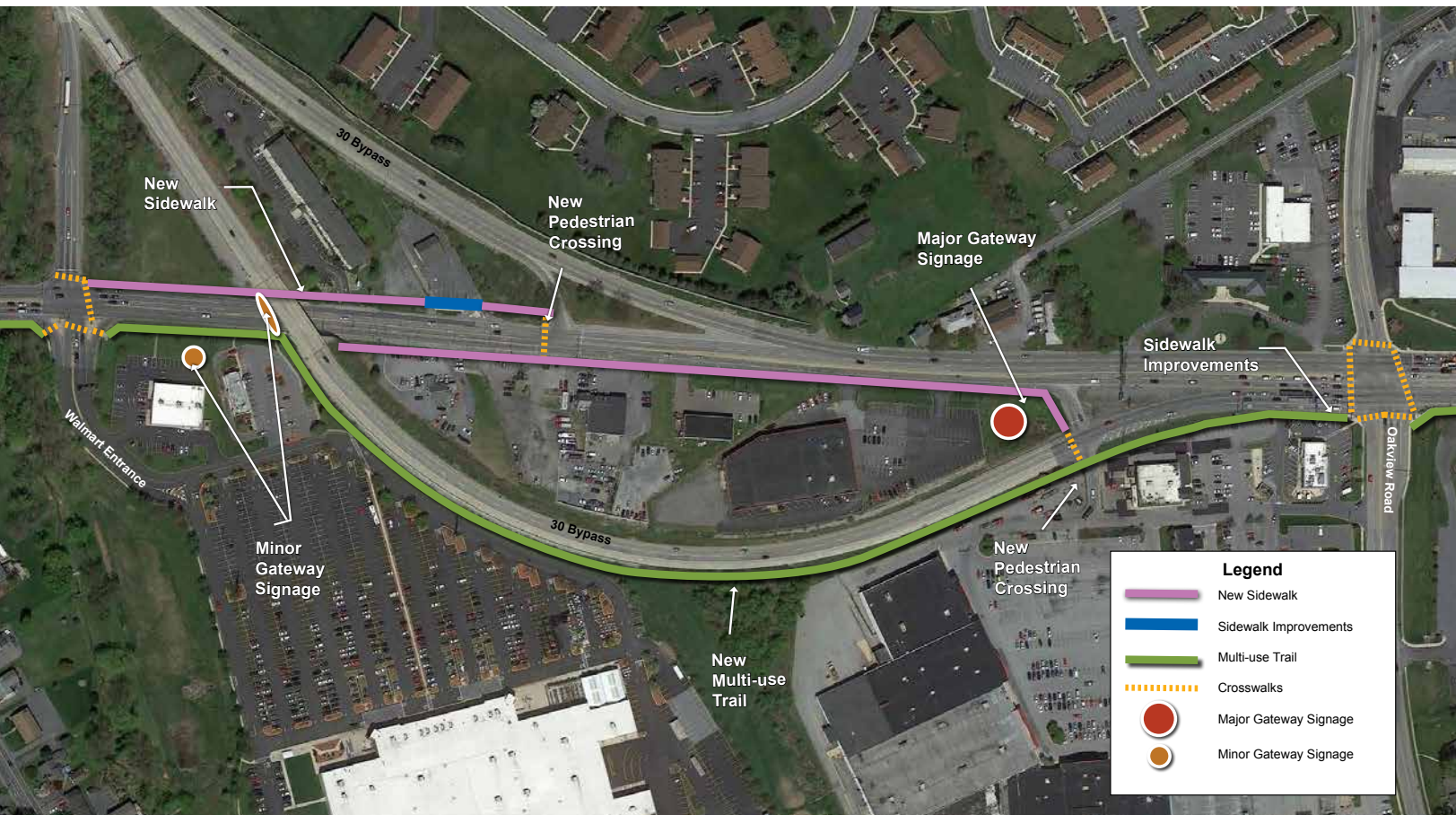
In particular, there is a large volume of left turn movements from Lincoln Highway on to Strasburg Pike (640 cars turn left during PM peak compared with 490 driving through). One of the two existing through lanes can be converted to a dedicated left turn lane to help move traffic more efficiently between the Bypass and Strasburg Pike. There are also opportunities for improving pedestrian crossings and medians in this area.

Workshop participants also expressed interest in improving the existing concrete median between Strasburg Pike and the Walmart entrance. The current median limits fire truck access to Volleyball Corner, and a new median could be designed to better facilitate emergency access and provide safe pedestrian stopping areas at the intersections.

With approval from the Steering Committee, we will integrate all of the improvements described above into the overall corridor illustrative plan.

7. Multi-modal Connections between Oakview and Walmart Entrance

Funnel Character Area



There are no safe pedestrian routes along Lincoln Highway from Oakview Road to the Walmart entrance. At the stakeholder workshop, participants were presented two options for a potential sidewalk connection from the Walmart entrance to Oakview Road: one option for placing the sidewalk south along the edge of the Route 30 Bypass ramp, and an option for extending sidewalks directly along Lincoln Highway. Participants were most interested in the second, more direct option. However, a multi-use path could also be extended into the funnel along the edge of the bypass to supplement the sidewalk along the Bypass ramp. The graphic above shows both facilities, with a sidewalk connection placed directly along Lincoln Highway, and the multi-use path extending around the south edge of the Route 30 Bypass to create more direct multi-modal access to the Kmart and Walmart shopping centers.

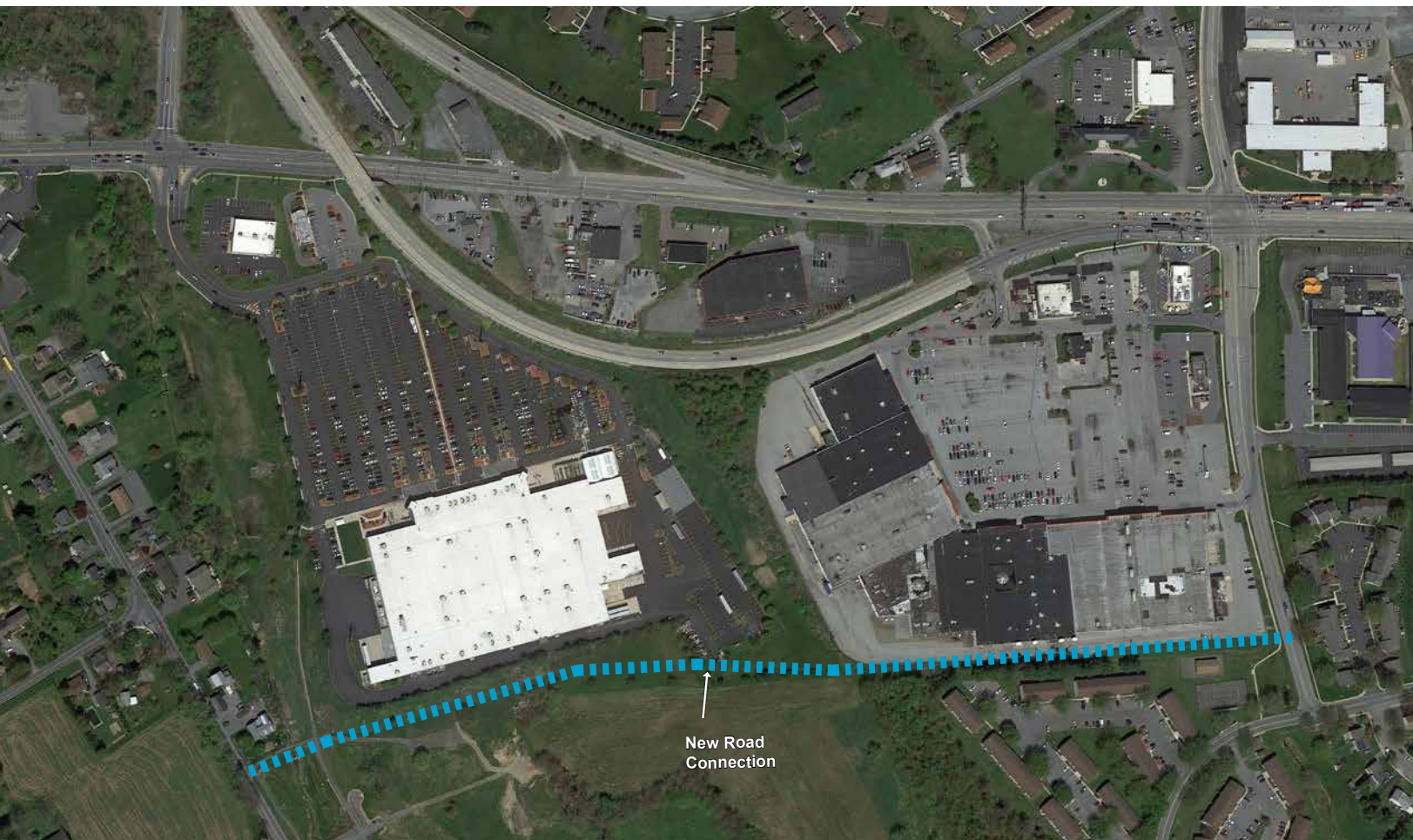
The pedestrian connection through the auto island will require a pedestrian crosswalk across Lincoln Highway, which could be installed at the existing signal across from Pep Boys. The most significant issue for this sidewalk configuration is safe access across the eastbound Route 30 Bypass exit, which could be accomplished through a pedestrian overpass or the installation of a new signal and crosswalk at the existing Kmart shopping center entrance.

This Funnel Character Area functions as a gateway to the corridor from the west. Recognizing this, we have proposed gateway signage at the eastern and western edges of the Route 30 Bypass loop. At the workshop, participants discussed whether major gateway signage should occur in these locations or further west in the Western Gateway Character Area. The group recommended that the major gateway feature(s) be located in the Funnel Character Area with supporting, smaller gateway features located further west. This approach would help to create a unique identify for the corridor rather than simply delineating where the corridor begins and ends.

With approval from the Steering Committee, we will integrate all of the improvements described above into the overall illustrative plan.

8. New Road Connection Between Strasburg and Oakview

Funnel Character Area

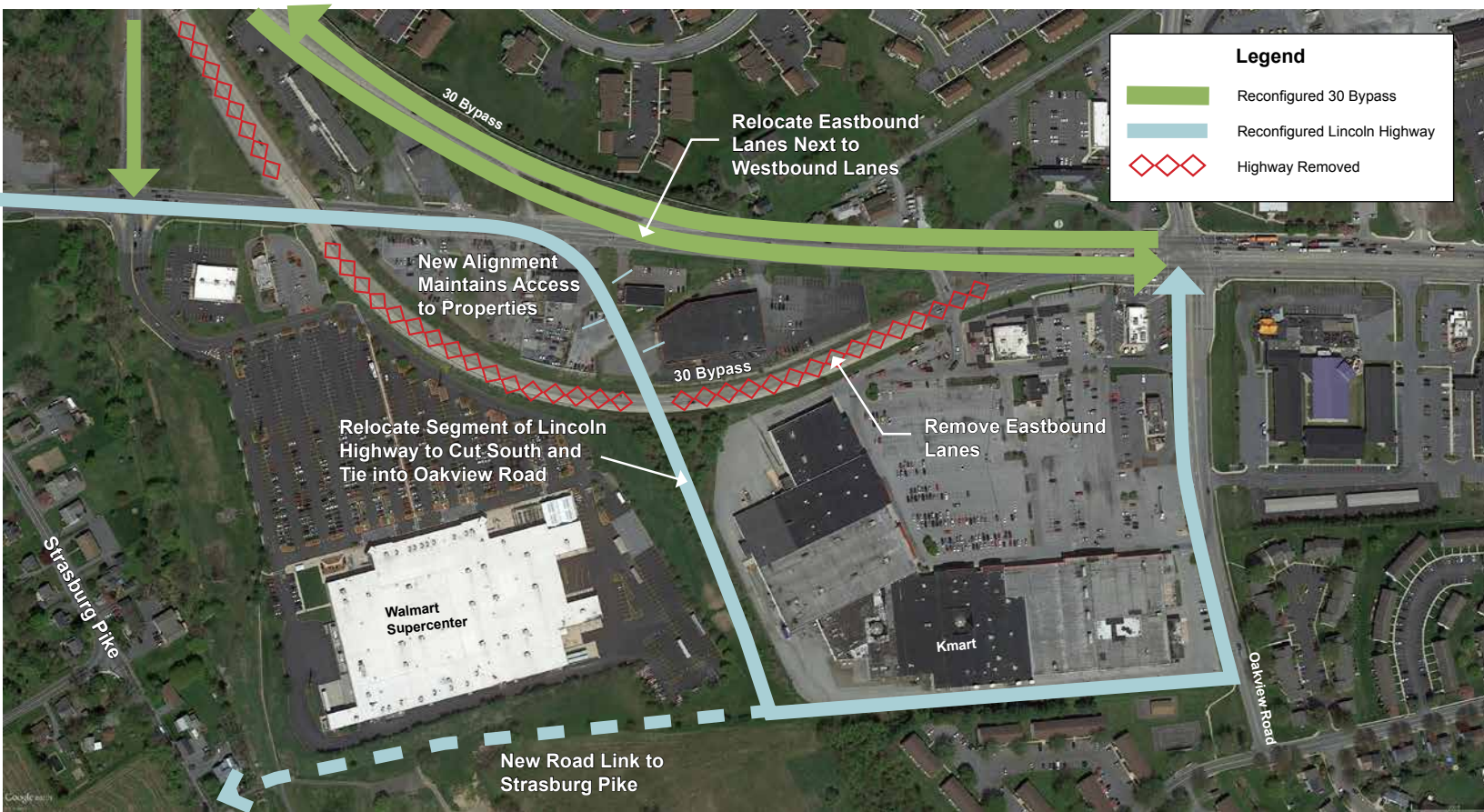


There are few east-west connections in close proximity to Lincoln Highway, which forces local users to drive on Lincoln Highway or go far out of their way to avoid the corridor. A new road connection between Strasburg Pike and Oakview Road would create a local alternative to Lincoln Highway in the Funnel Character Area, which is one of the most difficult areas to navigate. The analysis of current traffic patterns also showed a large number of Route 30 users turning on to Strasburg Pike. Most of these turns may be from the Route 30 Bypass, but for local users who live directly south of the Walmart, an additional road would provide additional access for their neighborhood. The road connection was proposed at the stakeholder workshop as part of a major Route 30 Bypass reconfiguration, but can be looked at as a standalone project.

Additional study is needed to address issues with roadway placement, topography, and proximity to the service areas of the Kmart and Walmart, which may be outside of the scope of this project. However, we are recommending to develop this idea further by investigating the best location for the roadway that minimizes disruption to Flory Park and avoids major changes in topography.

9. Bypass Reconfiguration Alternative A

Funnel Character Area



The full planned design of the Route 30 Bypass was never constructed, resulting in a partial Bypass ramp configuration, which presents safety and efficiency challenges for the corridor. A major reconfiguration of the roadway will be needed to fully address this issue. This planning process considered two potential alternatives to improve multi-modal access in this area.

The first alternative proposed relocating the major eastbound exit for the Bypass immediately alongside the westbound lanes. This would require Lincoln Highway to be rerouted around the Kmart shopping center to a new intersection at Oakview Road, which could be linked to another new road connection to Strasburg Pike. Access to properties within the auto-island would be maintained. The complexity and cost of this alternative means that it would require significant time to fund, design, and construct, and would therefore need to be considered a long-term improvement plan.

At the stakeholder workshop, participants expressed concerns about this alternative, particularly the amount of land that would be needed for right-of-way acquisition. After reviewing the potential traffic impacts of the configuration, the design team determined that the new roadway would create significant delays along Lincoln Highway Westbound and Oakview road due to the sheer amount of traffic being forced to make multiple left turns.

Given the costs and traffic impacts, we recommend dropping this alternative from consideration.

10. Bypass Reconfiguration Alternative B

Funnel Character Area



The second alternative for reconfiguring the Route 30 Bypass recommended removing the eastbound exit lanes and instead directing all traffic exiting the Bypass to the existing off-ramp across from the Walmart. Additional infrastructure would likely be needed at the Walmart intersection, but the new configuration would be much safer and more efficient for all modes. As with Alternative A, the complexity and cost of this alternative means that it would require significant time to fund, design, and construct, and would therefore need to be considered a long-term improvement plan.

Workshop participants expressed concerns about the potential for traffic to back up on to the Bypass in this configuration. After a schematic review of the traffic impacts, the Bypass exit ramp would likely need additional lanes installed, including three left turn lanes, to accommodate the shorter ramp. Additional right of way along Lincoln Highway would also be needed to support the higher traffic flow and multi-modal improvements proposed for the corridor.

Despite these limitations, we propose continuing to evaluate this alternative with approval from the Steering Committee, which would include a schematic plan showing the necessary road cross section for the off-ramp and Lincoln Highway needed to support a redesigned bypass exit.

Next Steps

The cross-section and Character Area recommendations that are approved by the Steering Committee at the November 18th Steering Committee meeting will continue to be developed for the second stakeholder workshop in January or earlier February. In addition to fully developed plans for individual proposals, we will prepare a draft of the corridor-wide illustrative site plan, laying out a full summary of the proposals described in this memo. With a full site plan and site-specific proposal plans, stakeholder workshop participants will be able to drill further into each project while better understanding the relationships between them. This will put us in a good position to finalize designs, move forward with cost estimations, and prepare other more detailed analyses necessary to produce a final Streetscape Plan.