

Princeton Avenue and Spruce Street Transportation and Site Access Enhancements Project

Mercer County Planning Division

AECOM Transportation
(formerly DMJM Harris)

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Agenda

- Project Status
- Land Use and Transportation Vision
- Improvement Strategies
- Next Steps



Baseline Principles

- Reduce vehicular speeds
- Improve traffic safety
- Increase accessibility for pedestrians and bicyclists
- Make streets more compatible with neighborhood-scale land uses
- Make adjacent land uses compatible with the vision of the “complete street”



Project Status - Key Activities

■ Analysis

- Circulation issues assessment
- Land use assessment
- Existing and future traffic analyses

■ Outreach

- Advisory Committee meetings (Feb 13, Apr 8, June 12, Dec 2, 2008)
- Public meetings (Apr 22, May 6, 2008)

■ Strategies

- Corridor improvement strategies
- Improvement phasing linked to land use and access decisions



Circulation Issues Assessment Spruce Street

- Numerous driveways in front of Farmers' Market and Halo Farm
- Difficult egress from north side of street
- Speeding along the street
- Lack of accommodations for pedestrians and bicyclists
- No public transit along the corridor



Circulation Issues Assessment Princeton Avenue

- Congestion and safety concerns at Brunswick Circle Extension intersection
- Traffic operational deficiencies at Mulberry Street
- Congestion at Spruce Street intersection
- Lack of accommodations for pedestrians and bicyclists
- Inadequate bus stop facilities



Land Use Assessment

- Existing uses are predominantly non-residential
- Existing zoning calls for more non-residential (business-commercial)
- Recent studies have proposed mixed-use development / redevelopment



Land Use Assessment

- Build-out under existing zoning (highway commercial) would generate about 650 additional peak hour vehicle trips along Spruce Street.
- Revised zoning could reduce the number of peak hour trips and increase the number of trips by transit, walking, or carpooling.
- Revising the zoning to office and / or residential could reduce the increase in peak hour vehicle trips along Spruce Street to about 200.



Traffic Analysis

- Existing - site access driveways approaching failing performance
- Future with current land use – mainline corridor as well as site access driveways would have failing performance
- Future with alternate land use – potential for a 3-lane “complete street” with bicycle and pedestrian facilities



Outreach Feedback

Comments and survey responses indicate support for:

■ General Strategies

- Multi-modal circulation improvements
- Mixed uses
- Improved street connectivity

■ Improvement Concepts

- 3-lane cross-section for Spruce Street
- Roundabouts
- Re-aligning intersection of Princeton Ave. & Mulberry Street
- Exclusive right turn lane for southbound Princeton Ave. at Spruce Street



Integrated Land Use and Transportation Vision

- Revise zoning along Spruce Street from highway commercial to office and / or residential
- Consolidate driveways along Spruce Street
- Install traffic signal at new combined driveway for Farmers' Market and Halo Farm
- Install traffic signal or roundabout at intersection of Spruce Street & Tiffany Woods Drive
- Provide 3-lane cross-sections along Spruce Street and Princeton Avenue



Any
Questions?



Phased Improvement Approach

- Phasing of transportation improvements based on access and land use triggers
 - Driveway consolidation (access) will trigger adding a new traffic signal (transportation)
 - Alternative zoning (land use) will trigger converting 4-lane corridors to 3-lane “complete streets” (transportation)
- Field checks to ensure that each phase demonstrates acceptable operating performance levels
- Phasing is designed in such a way that it is easy to revert back to earlier phase with little loss in capital investment



Princeton Avenue Corridor

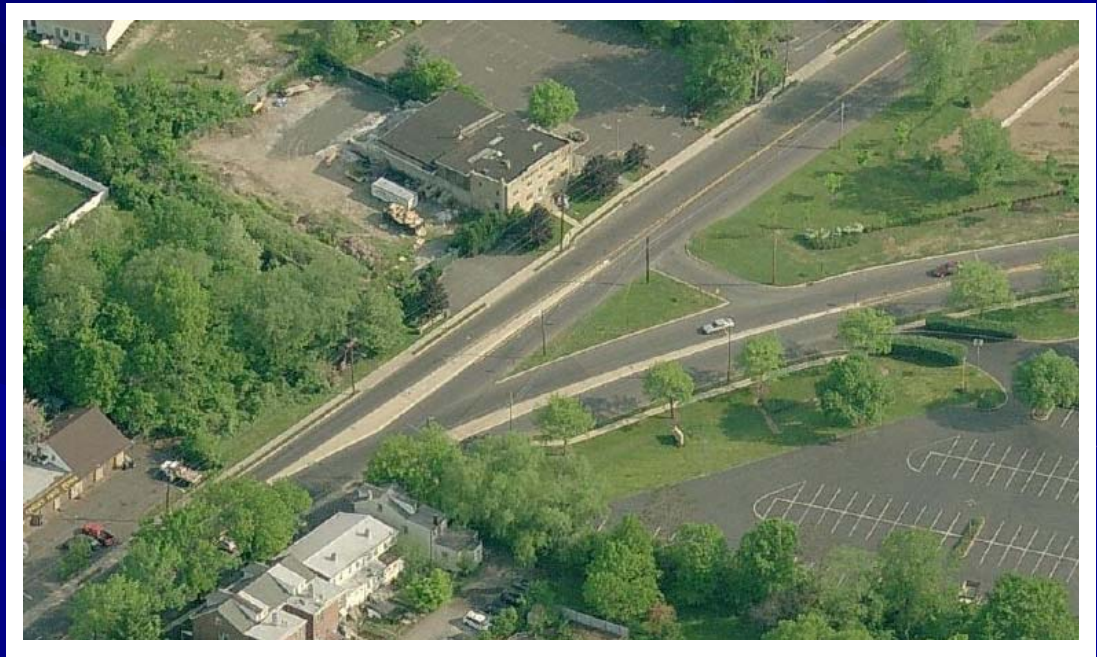
Improvement Strategies



Princeton Avenue and Brunswick Circle Ext.

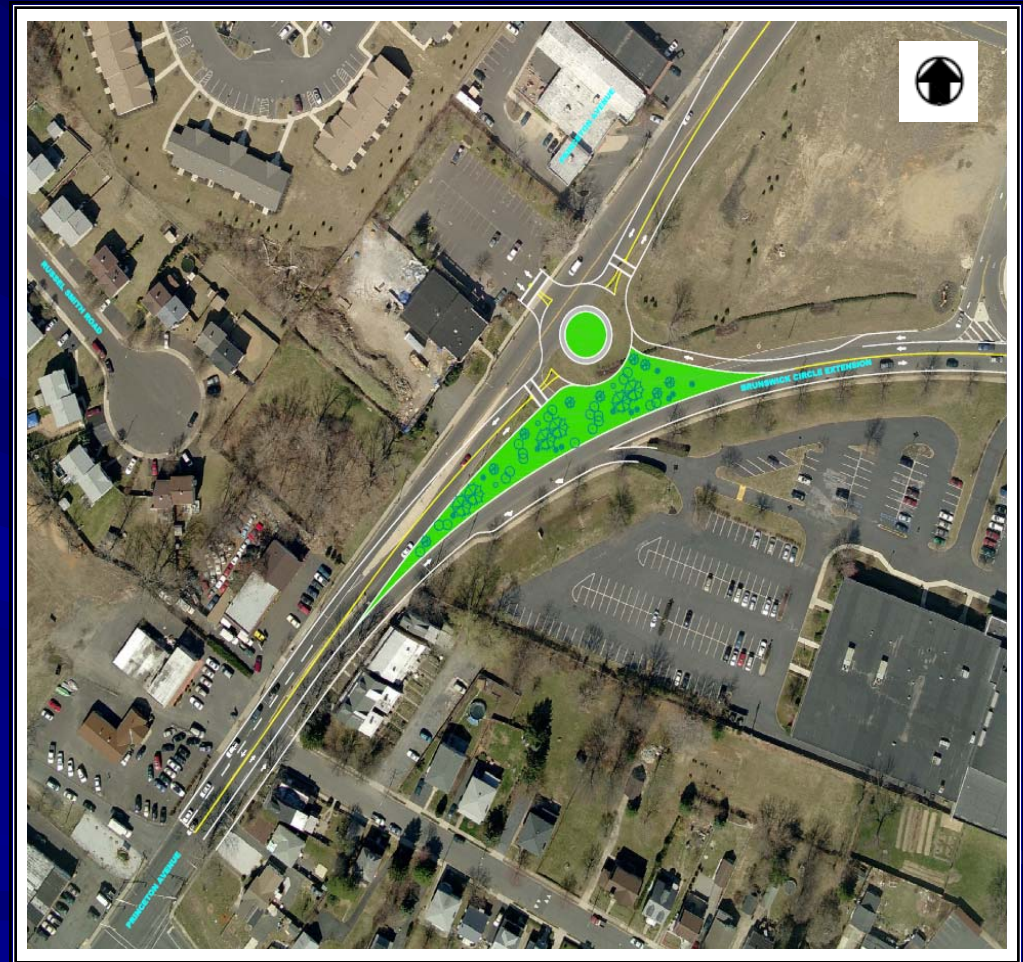
■ Current Issues

- Traffic operational deficiencies due to current intersection geometry, especially northbound movement on Princeton Avenue
- Higher traffic speeds, especially to and from the Brunswick Circle



Princeton Avenue and Brunswick Circle Ext.

- Suggested Improvements
 - Install a roundabout in location along Princeton Avenue north of existing intersection
- Land Use Trigger
 - Significant development between Brunswick Circle Extension and US 206.



Princeton Avenue and Brunswick Circle Ext.

■ Improvement Benefits

- **Improved traffic flow**
- **Significant improvement in intersection safety**
- **Effective traffic calming measure and possible gateway treatment for the corridor**



Princeton Avenue and Mulberry Street

■ Current Issues

- Skewed intersection geometry
- Inefficient use of signal green time due to intersection geometry limitations
- Traffic operational deficiencies



Princeton Avenue and Mulberry Street

■ Suggested Improvements

- Realign intersection
- Modify signal phasing to maximize operating efficiency

■ Land Use Trigger

- Significant development on Trenton Farmers' Market or Choudhry Parcels



Princeton Avenue and Mulberry Street

■ Improvement Benefits

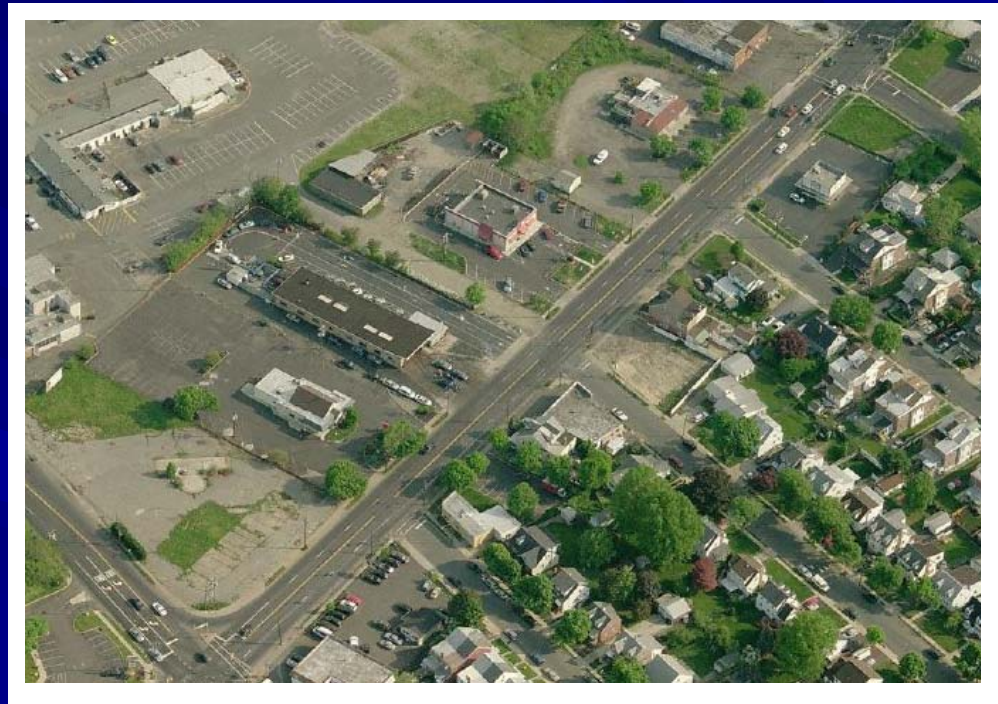
- **Intersection operating performance will be significantly improved**
- **Significant improvement in intersection safety – especially for traffic movements between Mulberry Street and the TFM Driveway and left turn movements from Princeton Avenue onto TFM Driveway as well as Mulberry Street**
- **Improved traffic flow along the corridor**



Princeton Avenue Corridor

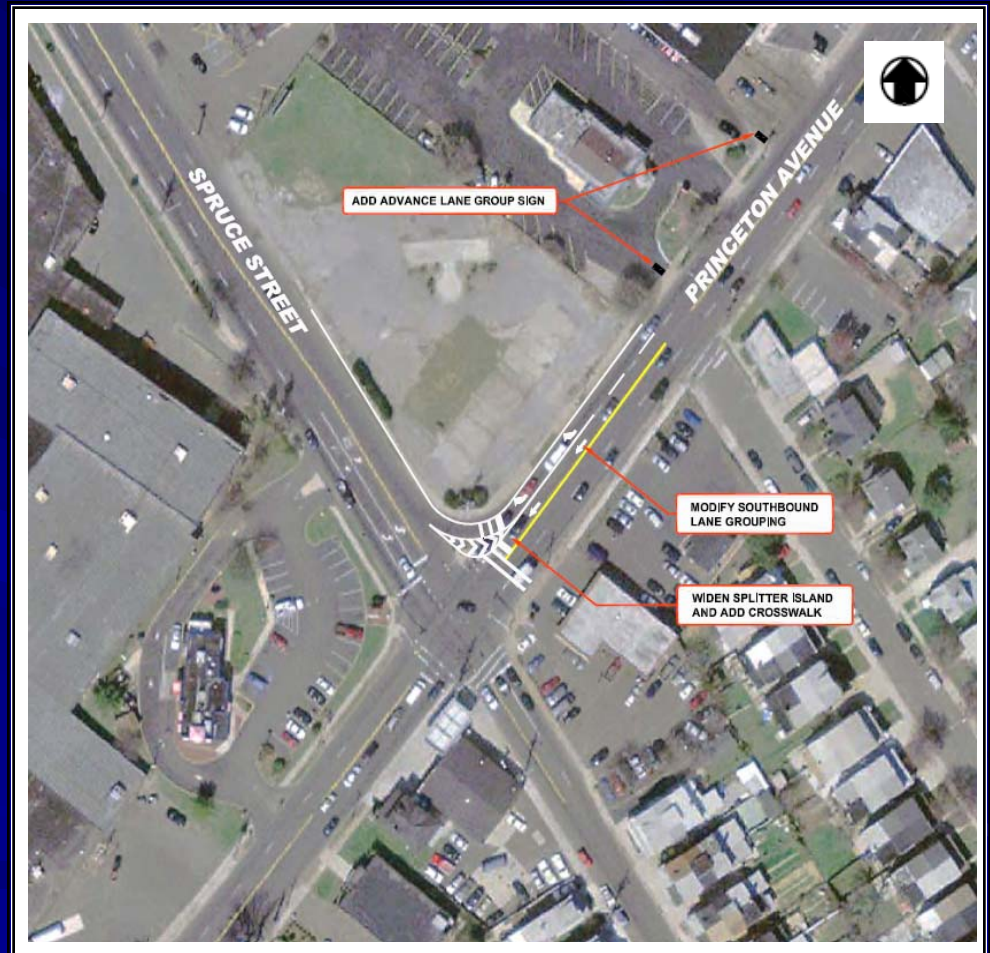
■ Current Issues

- Uneven utilization of southbound lanes; more vehicles tend to use right lane and left lane is underutilized
- Left turning vehicles trying to access adjoining businesses may block travel lanes
- Pedestrian crossing issues across Princeton Avenue at Spruce Street



Phase 1 - Improvements

- Suggested Improvements
 - Lane group modification on southbound Princeton Avenue at Spruce Street
 - Pedestrian crosswalk across Princeton Avenue at the intersection with Spruce Street
- Land Use Trigger
 - No trigger: Immediate action



Phase 1 Benefits

- **Separating southbound right turn and through movement trips will result in effective utilization of both southbound lanes**
- **Significant improvement in southbound right turn movement performance**
- **Improved pedestrian safety at the intersection through pedestrian crossing treatments and wider refuge island**



Phase 2 - Improvements

- Suggested Improvements
 - Create a modified 4-lane corridor between Mulberry Street and Spruce Street
 - Two southbound lanes, one center mutual left turn lane and one northbound lane
- Trigger
 - Field confirmation of acceptable level of traffic performance with only one southbound through lane in Phase 1



Phase 2 Benefits

- **Providing mutual left turn lane will improve safe access to adjoining properties on either side of the corridor**
- **The mutual left turn lane also will help to eliminate traffic flow interruptions**



Phase 3 - Improvements

- Suggested Improvements
 - Create a modified 4-lane corridor between Spruce Street and North Olden Avenue
 - Two southbound lanes, one center mutual left turn lane and one northbound lane
- Trigger
 - Field confirmation of acceptable level of traffic performance with only one northbound through lane in Phase 2



Phase 3 Benefits

- **Providing northbound left turn storage lanes will improve intersection performance at Olden Avenue as well as Spruce Street intersections**
- **Providing mutual left turn lane will improve safe access to adjoining properties on either side of the corridor**
- **The mutual left turn lane will also help to eliminate traffic flow interruptions**



Spruce Street Corridor

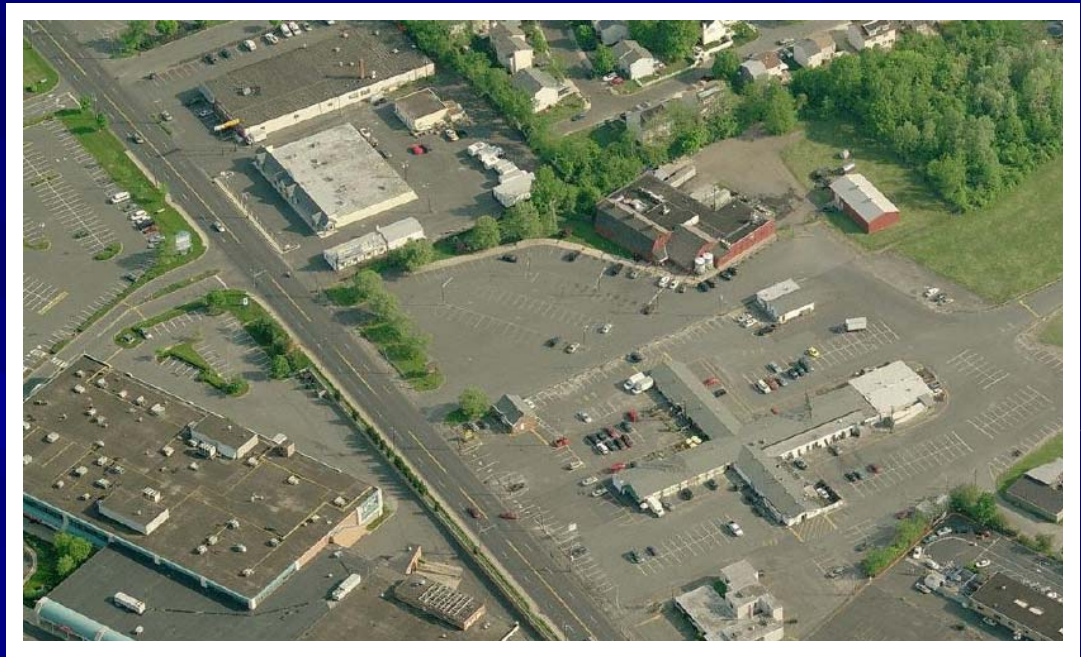
Improvement Strategies



Spruce Street Corridor

■ Current Issues

- Excessive number of site access driveways; impacts on mainline operation
- Driveway performance approaching unacceptable levels
- 4-lane corridor without traffic calming measures; high mainline traffic speeds
- Bicycle and pedestrian unfriendly corridor



Phase 1 Benefits

- **Providing appropriate left turn storage lanes will increase safety and improve access to adjoining properties on either side of the corridor**
- **Consolidating driveways can help meet signal warrants and achieve improved traffic flow along the corridor with less lateral friction**



Phase 2 - Improvements

- Suggested Improvements
 - Shift to a transition 3-lane section by converting eastbound outer lane into shoulder
 - One eastbound lane, one center left turn storage lane and one westbound lane
- Trigger
 - Field confirmation of acceptable level of traffic performance with only one westbound through lane in Phase 1.



Phase 2 Benefits

- **Converting eastbound outer lane into a shoulder will provide an opportunity to analyze traffic performance of the 3-lane corridor operation without making centerline changes and other capital improvements.**
- **This phase is a good transition between the existing 4-lane corridor and a future vision of a “complete street” with a 3-lane corridor with bike lanes and sidewalks.**



Phase 3 - Improvements

■ Suggested Improvements

- Make centerline shifts to design a 3-lane corridor with bicycle lanes and sidewalks

■ Trigger

- Field confirmation of acceptable level of traffic performance with only one eastbound and westbound through lane in Phase 2



Phase 3 Benefits

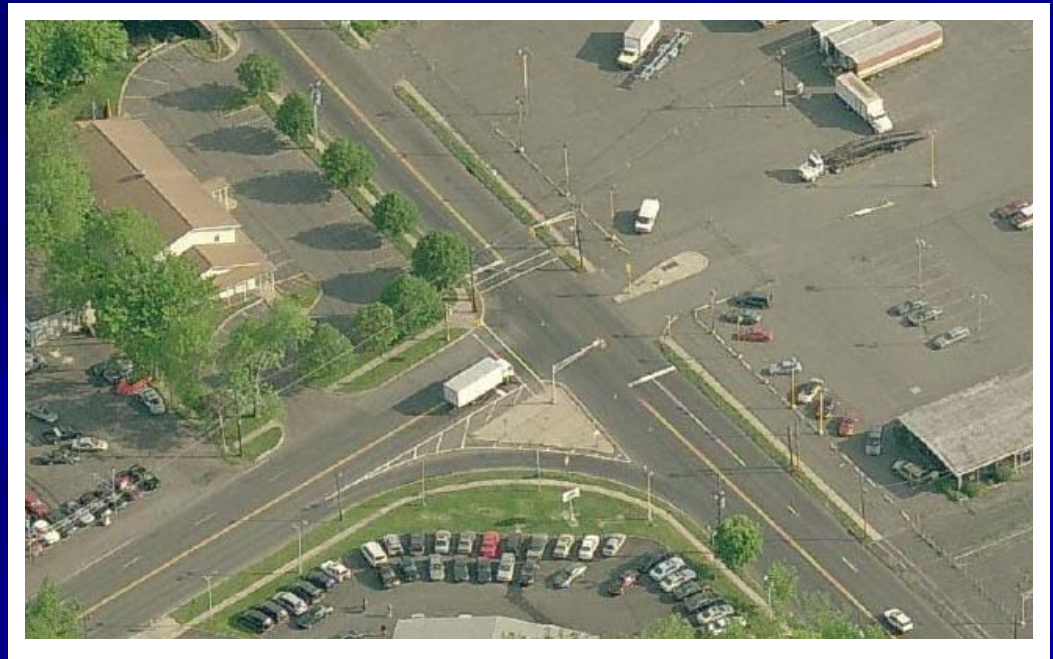
- **Transformation of the Spruce Street corridor into a bicycle and pedestrian friendly multimodal corridor while ensuring acceptable traffic operation levels.**
- **Improved traffic flow along the corridor.**
- **Improved safety for all travel modes along the corridor.**



Spruce Street and Arctic Parkway

■ Current Issues

- Intersection performance affected by lack of designated left turn storage lanes and protected left turn signal phasing on Spruce Street
- Northbound yield right turn from Arctic Parkway creates significant traffic friction with eastbound through traffic



Phase 1 - Improvements

- Suggested Improvements
 - Provide dedicated left turn lanes with protected left turn signal phasing
 - Modify splitter island to streamline traffic flows
- Land Use Trigger
 - No trigger; immediate action



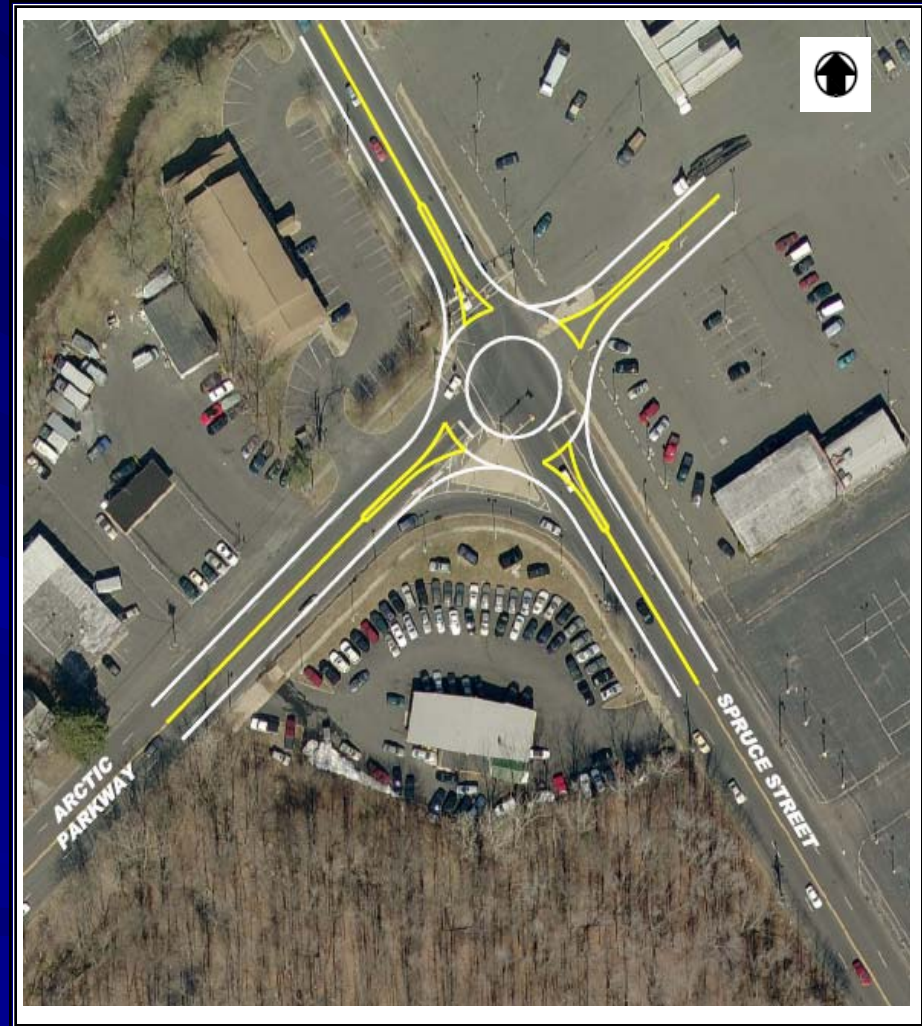
Phase 1 - Benefits

- **Providing left turn storage lanes on Spruce at this intersection would significantly improve approach performance as well as the overall performance of this intersection.**
- **Extending splitter island at the intersection of Arctic Parkway will streamline eastbound traffic flows arriving from south and west.**



Phase 2 - Improvements

- Suggested Improvements
 - Analyze provision of roundabouts or signal controls
- Land Use Trigger
 - Development / redevelopment of the Coleman-Cahill site as per alternative zoning



Phase 2 - Benefits

- **Maintain traffic flow and enhance safety**
- **If an urban roundabout is found to be suitable for this location by TIS analysis, it will serve as a traffic calming and gateway element for the Spruce Street corridor**



Spruce Street and Prospect Street

■ Current Issues

- Left turning vehicles from Spruce Street block the through traffic flow
- Gas station queues impact flow of traffic along the westbound direction on Spruce Street



Spruce Street and Prospect Street

- Suggested Improvements
 - Provision of left turn storage lanes
 - Provision of striped shoulders
- Land Use Trigger
 - No trigger; immediate improvement



Improvement Benefits

- **Providing left turn storage lanes on Spruce Street at this intersection would significantly improve traffic flow through this intersection**
- **Striped shoulder would help to separate passive vehicle queuing (associated with the gas station at the southeast corner) from active travel lane on Spruce street**



Questions / Comments



Next Steps

- Review Public Feedback
- Prepare Final Report – February 2009



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