



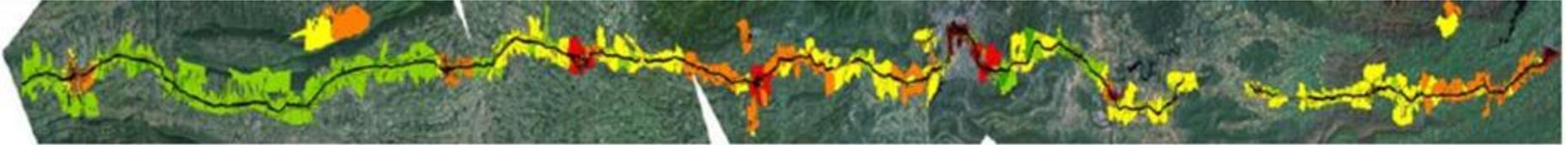
Arterial Management Planning – Facilitating Land Development through Corridor Preservation

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What is an Arterial Management Plan?

- Idea is to focus on high-growth corridors



- **Work with localities** to develop corridor management plans
 - » Thoroughfare improvements
 - » Intersection/interchange improvements
 - » Access points and median treatments
 - » Interparcel access and connections
 - » Operational improvements – signal optimization, triggers for provision/improvement
 - » Transportation Demand Management (TDM) strategies
 - » Set back requirements, ROW preservation

AMP – Purpose of Study

- **Goals**

- » Guide development and transportation decisions along corridor
- » Support economic development and vitality of study area
- » Maximize transportation system efficiency / safety and minimize public investment required to support local development goals

- **Process**

- Use pilot studies to build a streamlined methodology and approach
 - Route 3 – Spotsylvania
 - Routes 250 & 623 – Goochland
- Institute an annual work plan for future AMPs

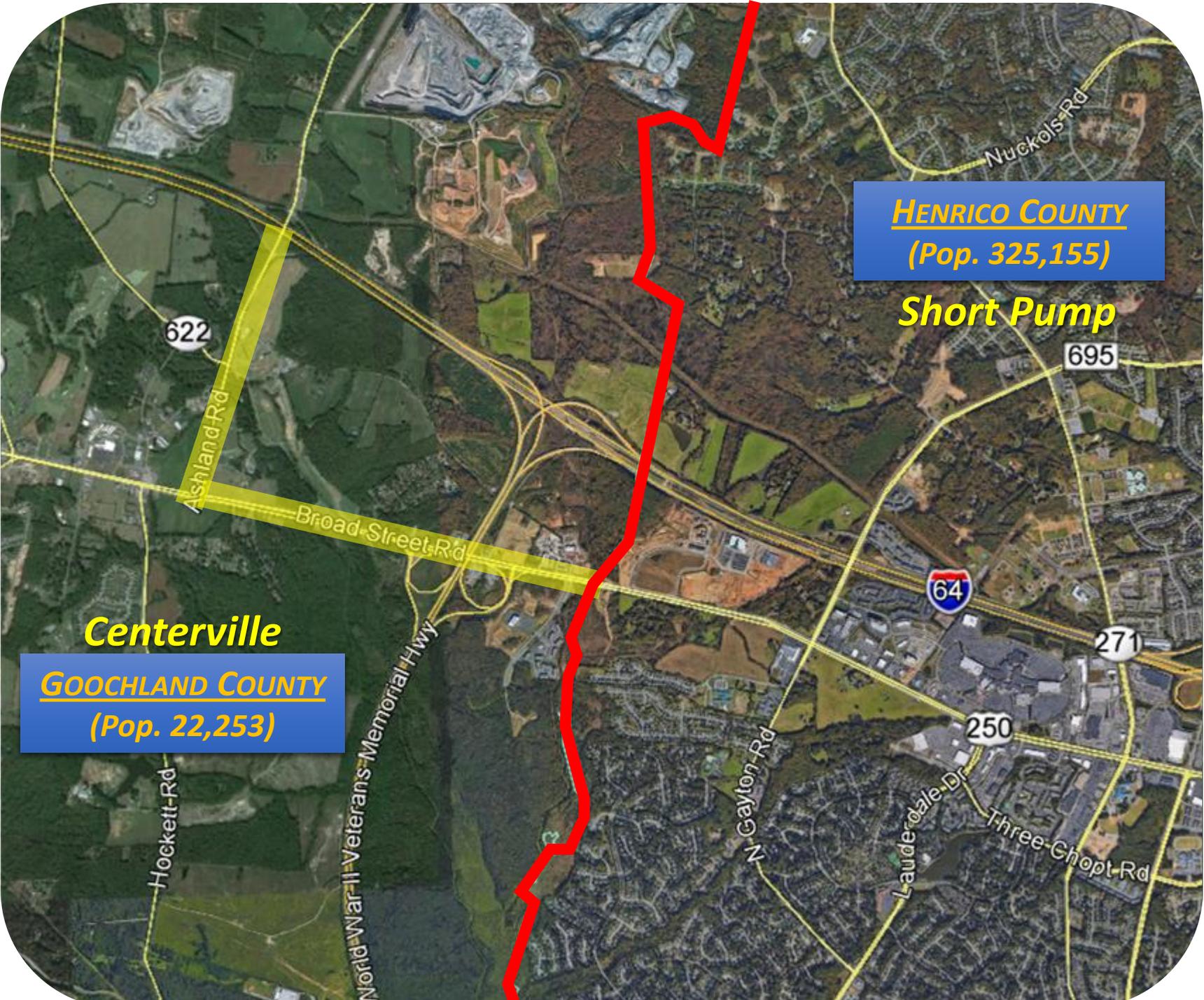


HENRICO COUNTY
(Pop. 325,155)

Short Pump

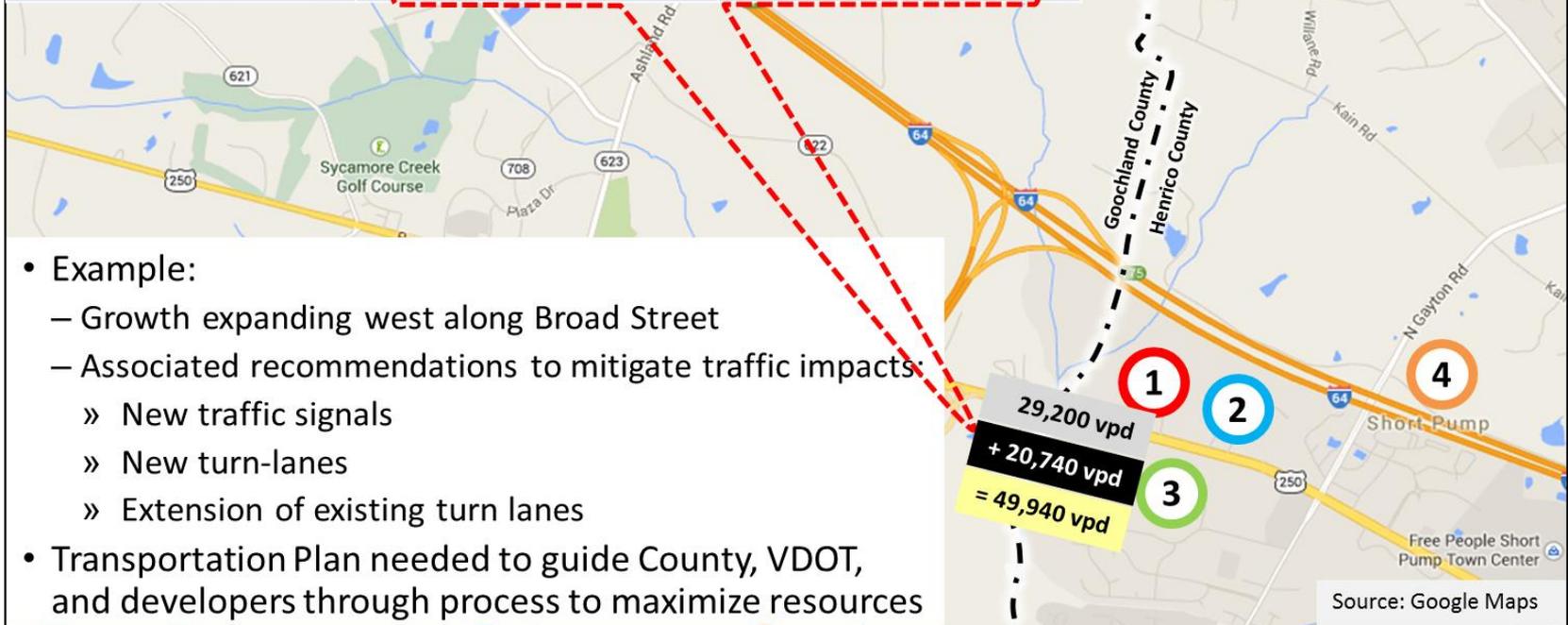
GOOCHLAND COUNTY
(Pop. 22,253)

Centerville



Why is a Transportation Plan Needed?

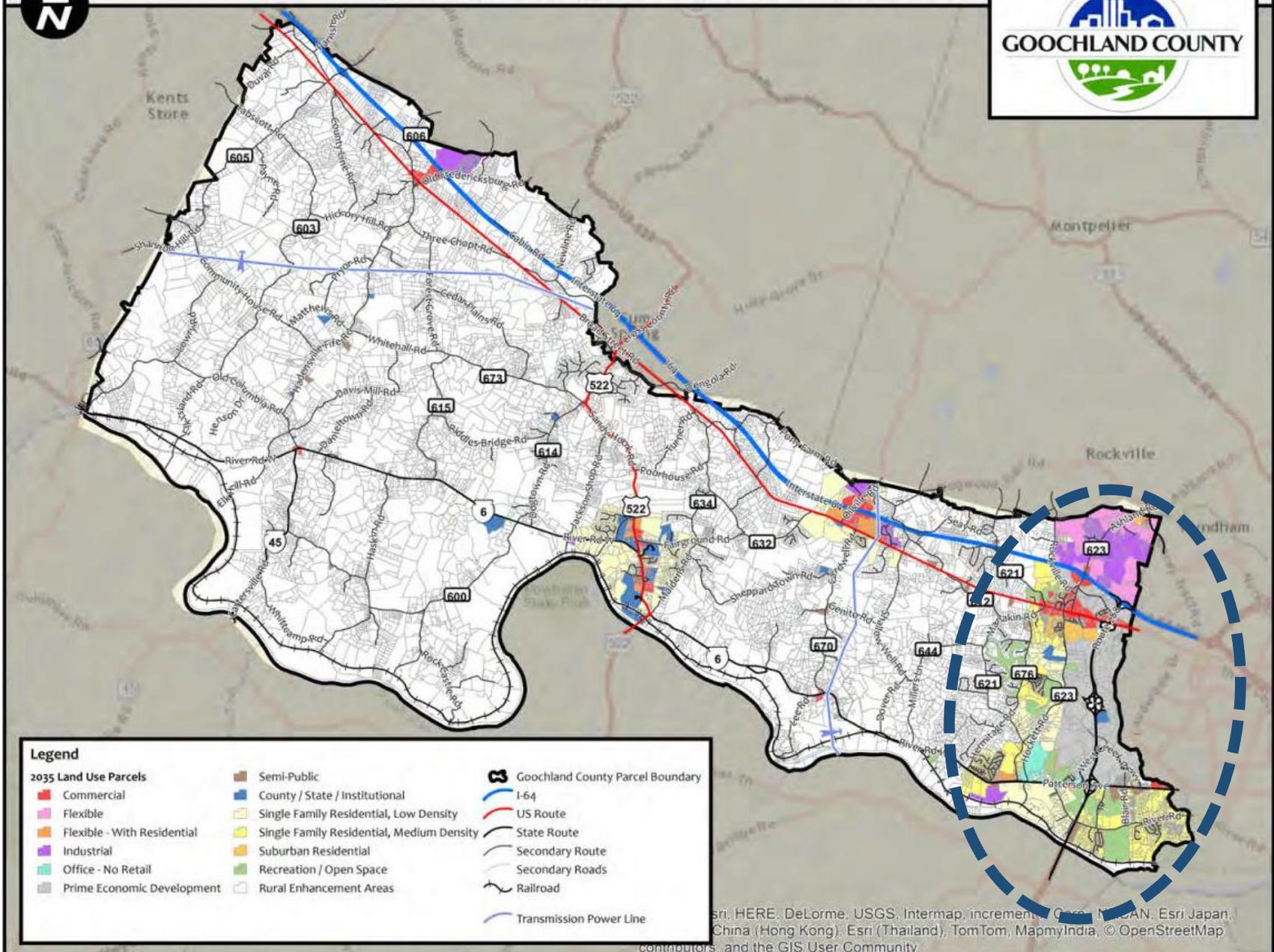
Planned Developments	① Attack Property	② West Broad Market	③ GreenGate Property	④ Bacova Property
Anticipated Build Year	2018	2016	2018	2016
Type of Development	Mixed-Use	Retail	Mixed-Use	Mixed-Use
New Daily Trips (veh/day)	14,330	18,310	7,570	8,400



- Example:
 - Growth expanding west along Broad Street
 - Associated recommendations to mitigate traffic impacts:
 - » New traffic signals
 - » New turn-lanes
 - » Extension of existing turn lanes
- Transportation Plan needed to guide County, VDOT, and developers through process to maximize resources

Source: Google Maps

2035 Comp Plan Map - 12 - Land Use - County Wide

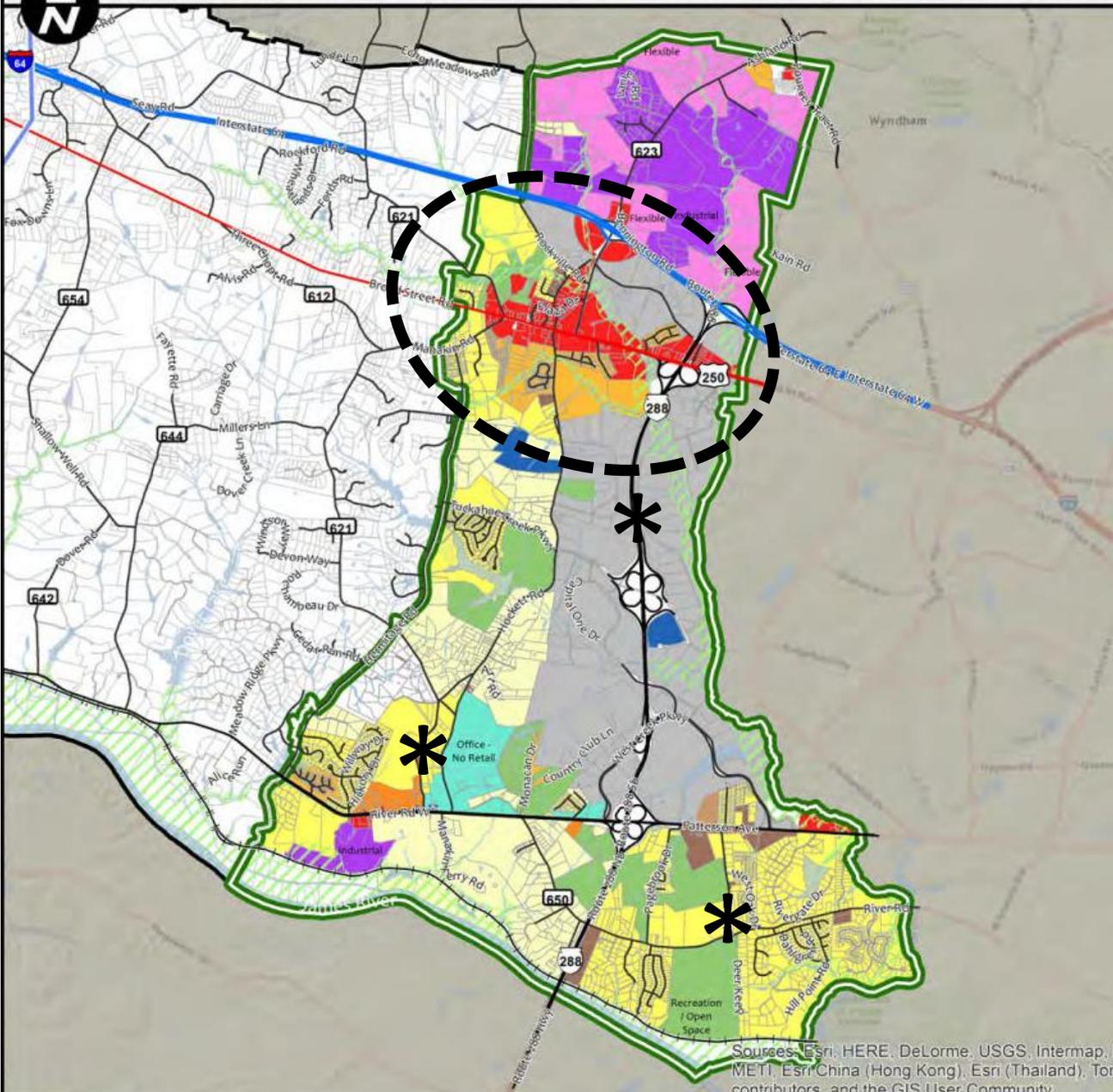


Legend

2035 Land Use Parcels	Semi-Public	Goochland County Parcel Boundary
Commercial	County / State / Institutional	I-64
Flexible	Single Family Residential, Low Density	US Route
Flexible - With Residential	Single Family Residential, Medium Density	State Route
Industrial	Suburban Residential	Secondary Route
Office - No Retail	Recreation / Open Space	Secondary Roads
Prime Economic Development	Rural Enhancement Areas	Railroad
		Transmission Power Line

Map data by Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., GEBCO, IGN, Esri Japan, Swisstopo, CNES/Airbus DS, USDA, AeroGRID, IGN, Esri, China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

2035 Comp Plan Map - 13 - Land Use - Designated Growth Area



Legend

2035 Designated Growth Area Land Use Parcels

- Commercial
- Flexible
- Flexible - With Residential
- Industrial
- Office - No Retail
- Prime Economic Development
- Semi-Public
- County / State / Institutional
- Single Family Residential, Low Density
- Single Family Residential, Medium Density
- Suburban Residential
- Recreation / Open Space
- Rural Enhancement Areas
- Goochland County Parcel Boundary
- Designated Growth Area Boundary
- Fire / EMS Buildings
- I-64
- US Route
- State Route
- Secondary Route
- Secondary Roads
- Railroad
- Transmission Power Line
- Surface Water Bodies
- Streams
- 100yr Flood Plain

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

2035 Comp Plan Map - 1 - Land Use - Centerville Village



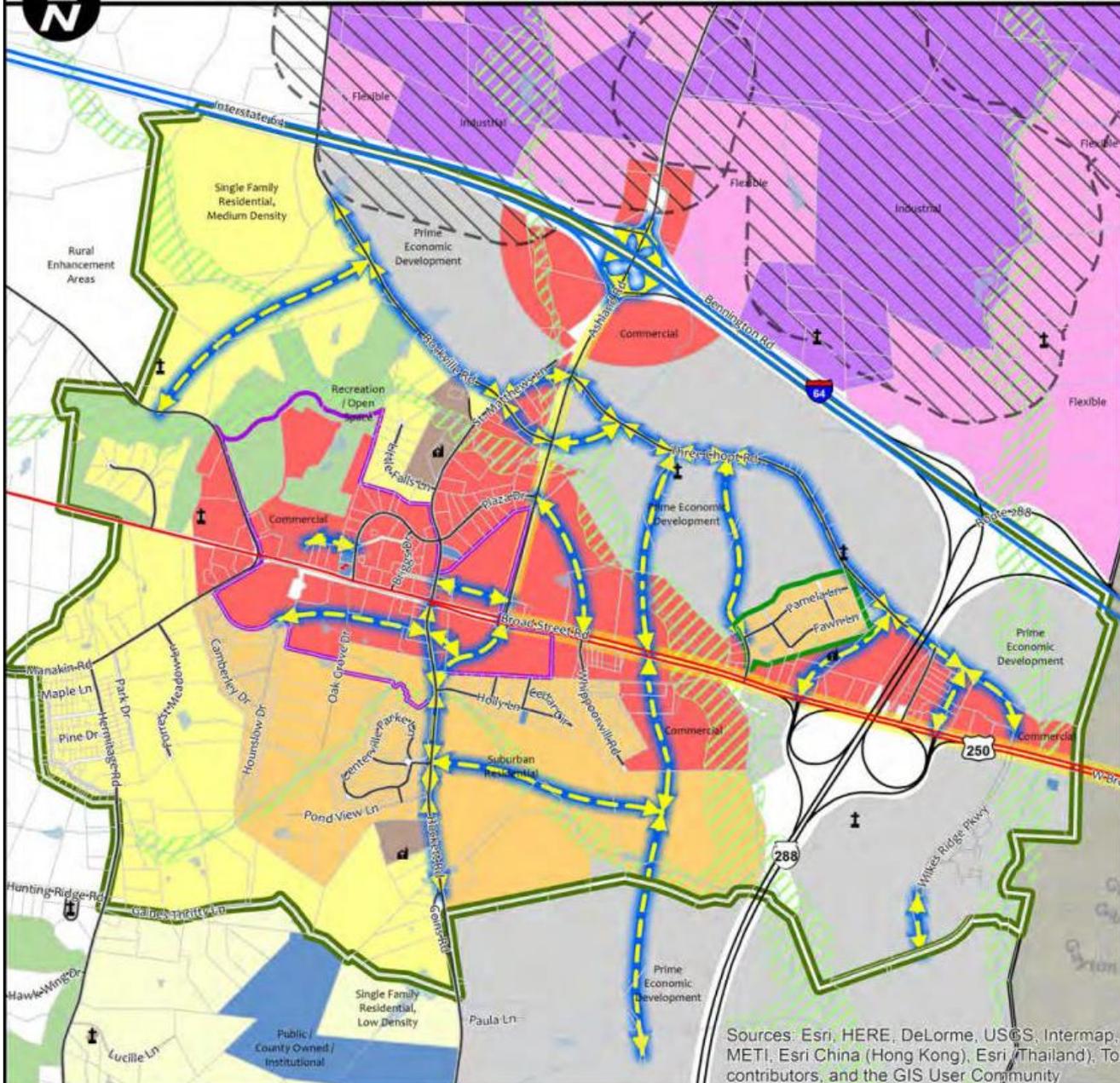
Legend

2035 Land Use Parcels

- Commercial
- Flexible
- Industrial
- Prime Economic Development
- Semi-Public
- County / State / Institutional
- Single Family Residential, Low Density
- Single Family Residential, Medium Density
- Suburban Residential
- Recreation / Open Space
- Rural Enhancement Areas

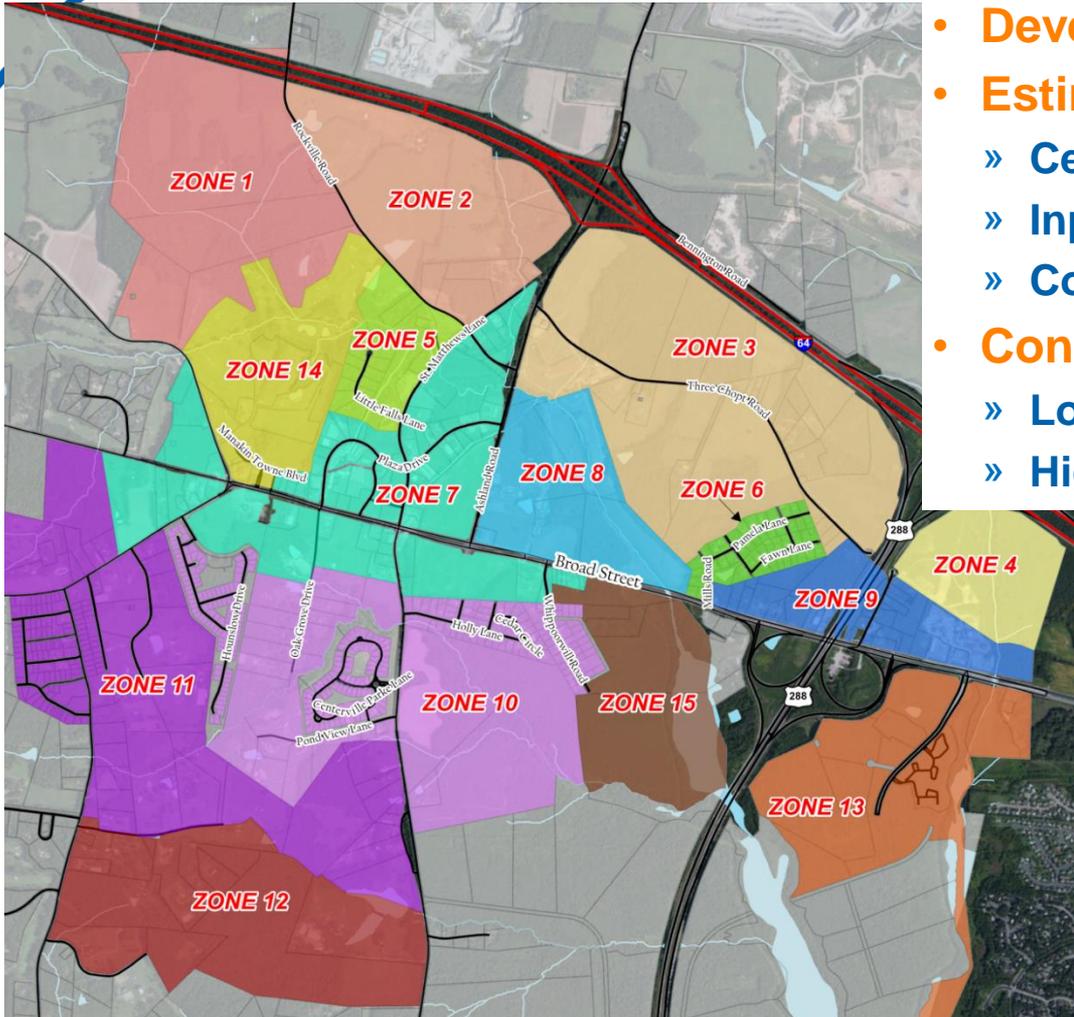
Other Features:

- Goochland County Parcel Boundary
- Village Boundary
- Bellview Gardens Buffer
- Centerville Village Core
- Cemetery
- Church
- Fire / EMS Buildings
- Future Transportation *
- Arterial Management Plan (AMP)
- I-64
- US Route
- State Route
- Secondary Route
- Secondary Roads
- Quarry - 1000' Buffer
- Surface Water Bodies
- Streams
- 100yr Flood Plain



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Future Land Use Assumptions



- **Developed 2035 Future Traffic Volumes**
- **Estimated Future Land Use**
 - » **Centerville Village Land Use Plan**
 - » **Input from stakeholders**
 - » **Coordinated with Steering Committee**
- **Considered Two Land Use Scenarios**
 - » **Lower Intensity**
 - » **Higher Intensity**



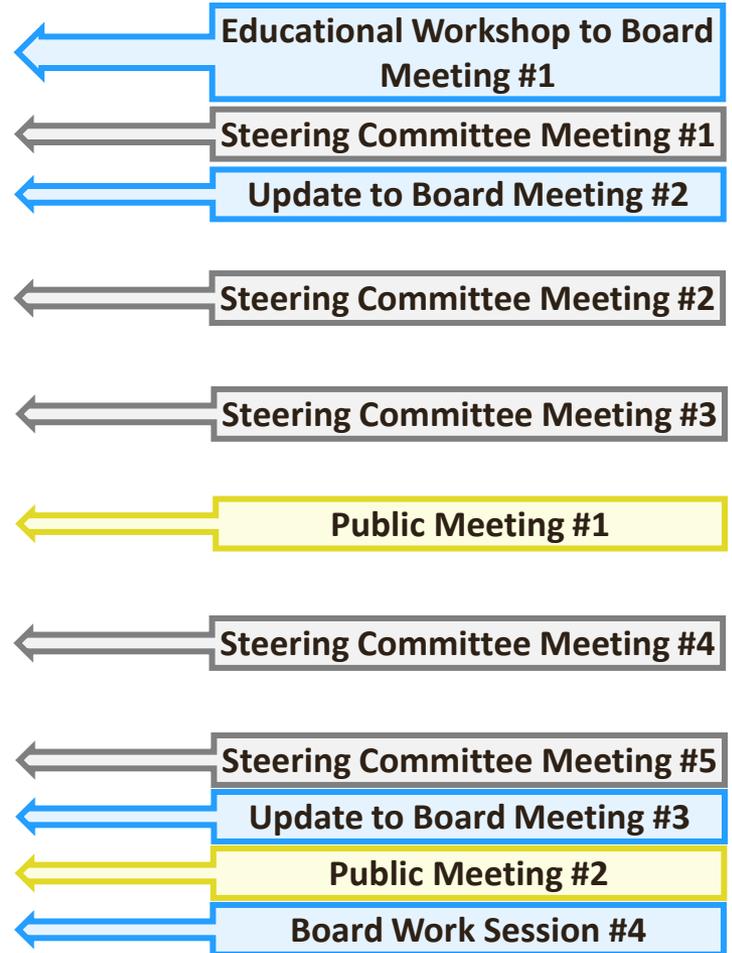
Results in **110,309** total daily site trips

Methodology

- **Project Kick-Off**
- **Existing (2014) Conditions**
 - » Operations and Safety
 - » Stakeholder interviews
- **Future (2035) Traffic Conditions**
 - » Background growth rates
 - » Future land use assumptions
 - » Trip Generation
 - » Trip Distribution
- **Access Management Scenarios**
 - » Minimally Managed Access
 - » Optimally Managed Access
- **AMP Recommendations**

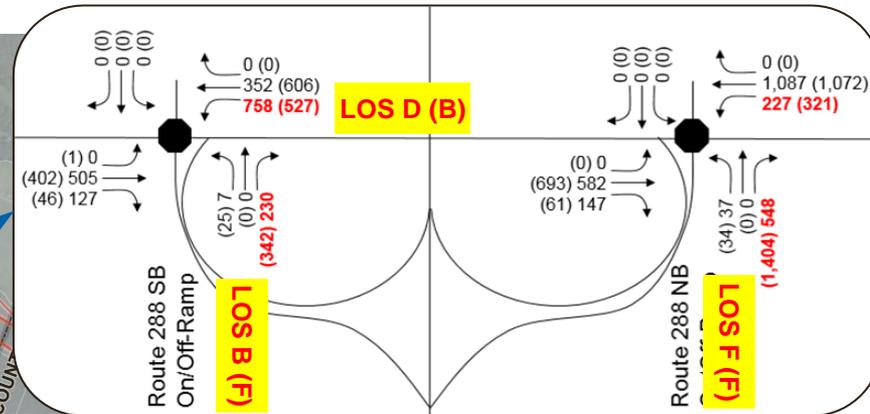
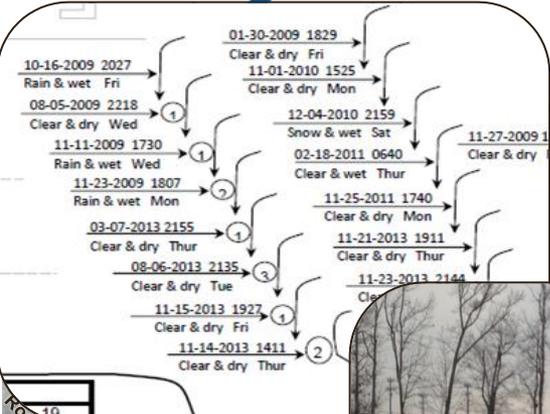


Consensus Building

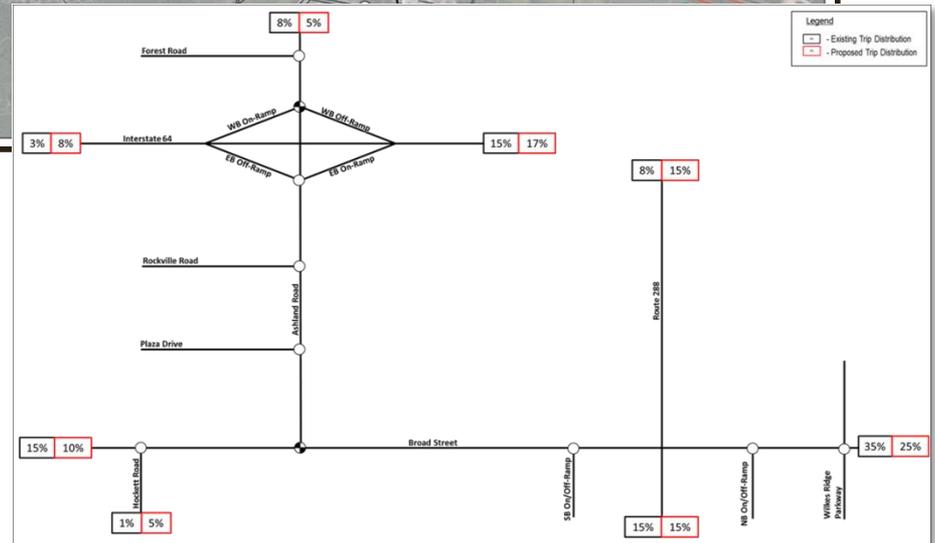
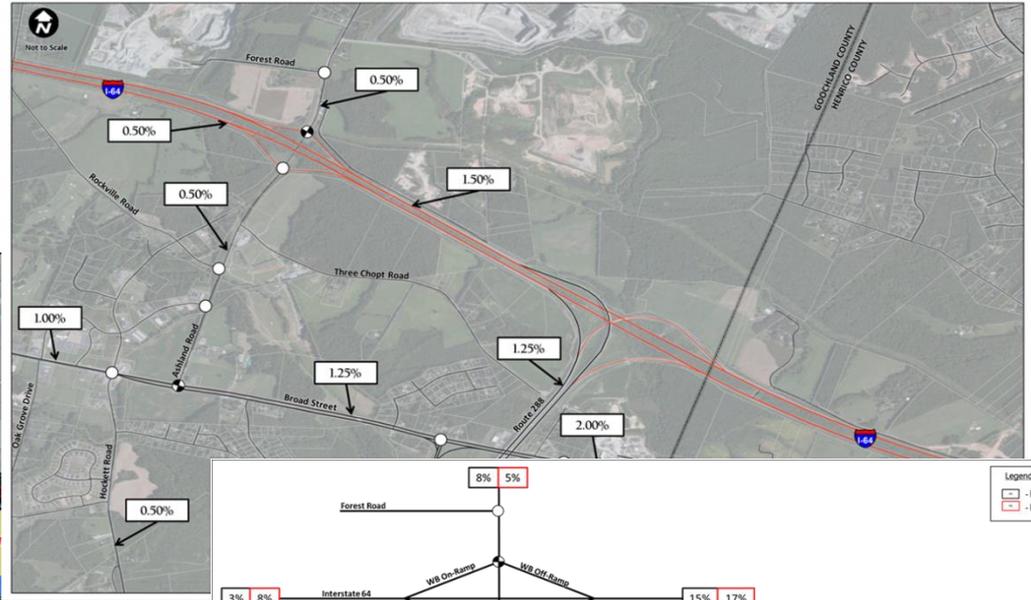
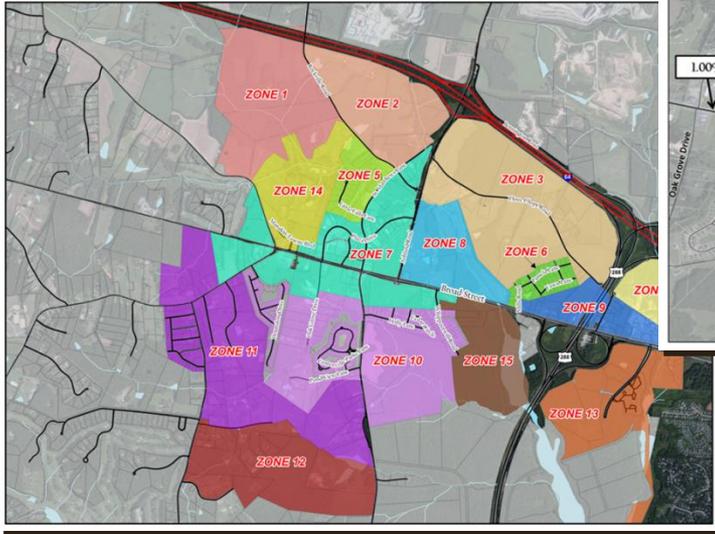


Current Transportation Issues

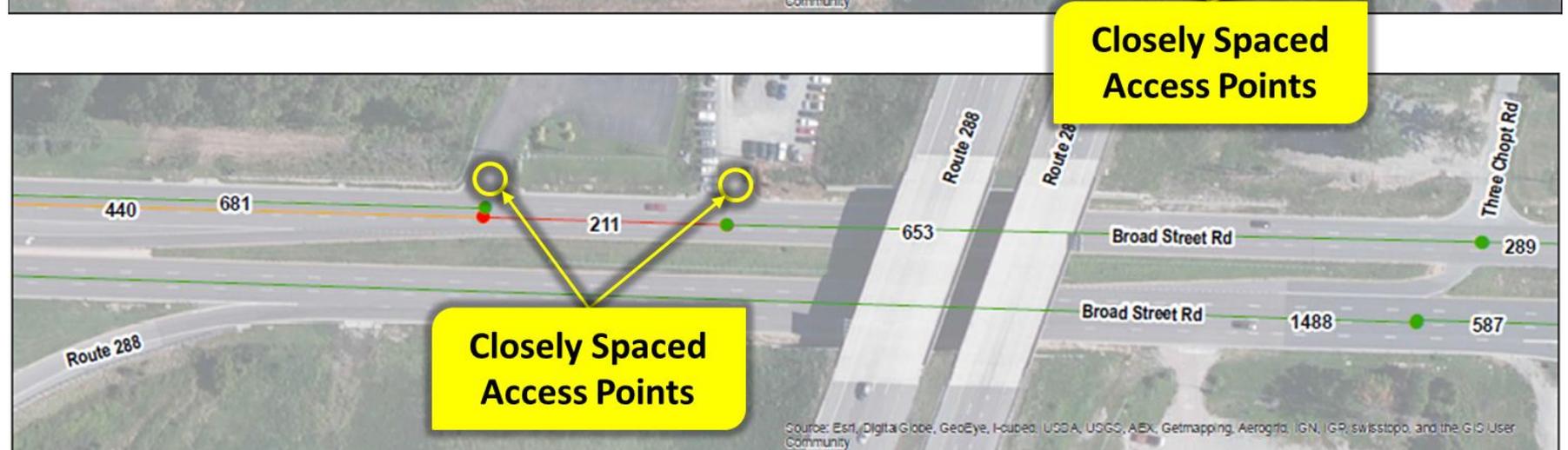
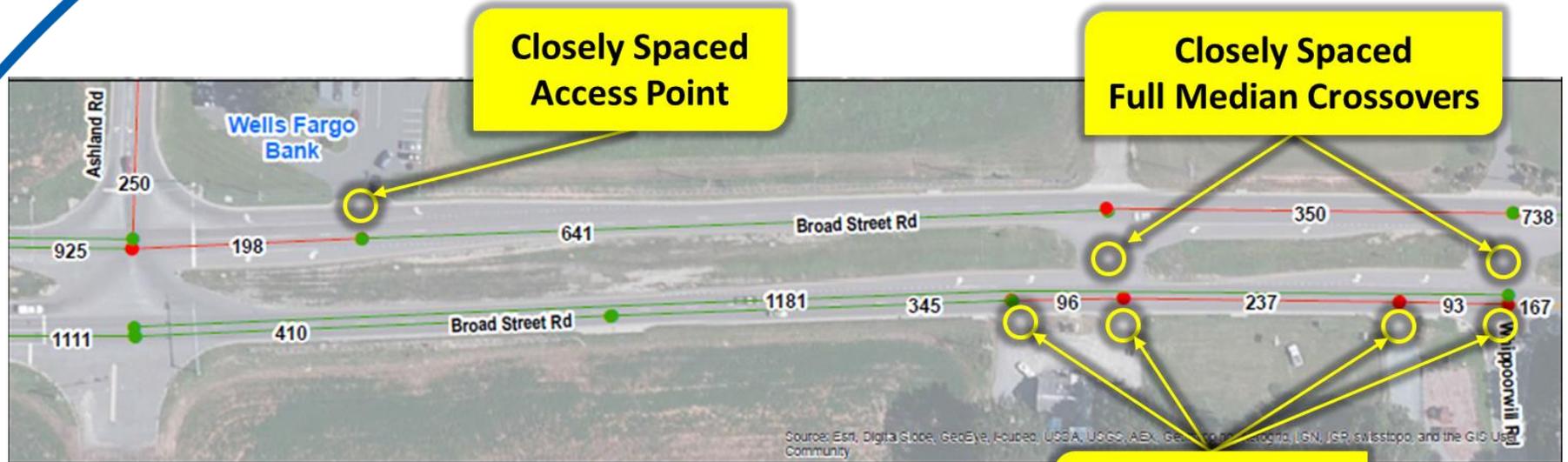
- **Route 288 at Broad Street Interchange**
 - » Large turning movement volumes, queuing
 - » Pattern of angle crashes
 - » Poor level of service, large delays
 - » Signing is not clear which ramp to take
 - » Poor sight distance from NB approach



Trip Distribution



Inventory of Access Points



Optimally Managed Access Scenario (OMAS)

MMAS

Intersection Types	Broad Street	Ashland Road	Total
Signalized	6	4	10
Full Movement Unsignalized	2	4	6
Right-In/Right-Out	22	31	53
Directional Crossover	2	0	2
Total =	32	39	71
# of Access Points per Mile =	19	27	

OMAS

Intersection Types	Broad Street	Ashland Road	Total
Signalized	7	4	11
Full Movement Unsignalized	0	0	0
Right-In/Right-Out	17	21	38
Directional Crossover	2	2	4
Total =	26	27	53
# of Access Points per Mile =	16	19	

- Introduced additional signal on Broad Street
- Eliminated all full movement unsignalized access points
- Reduced total number of access points by **26%**

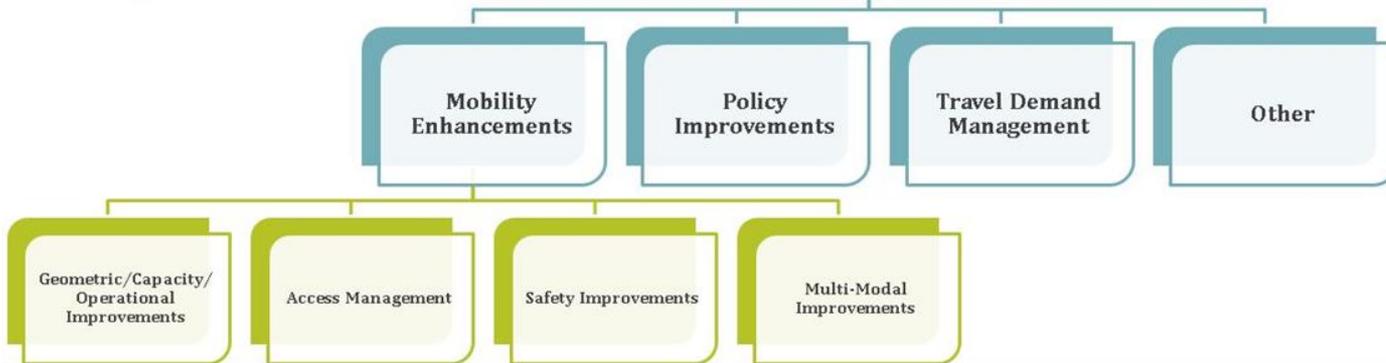
Total Number of Conflict Points		% Reduction
MMAS	OMAS	
286	116	40%

*Number of access points does not include residential driveways

Recommendations Toolbox

Purpose: *To ensure the safety and preserve the capacity of the Commonwealth's arterial highway network without wide scale roadway widenings.*

Toolbox of Alternatives



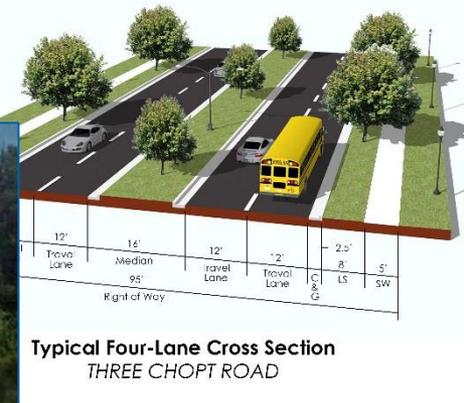
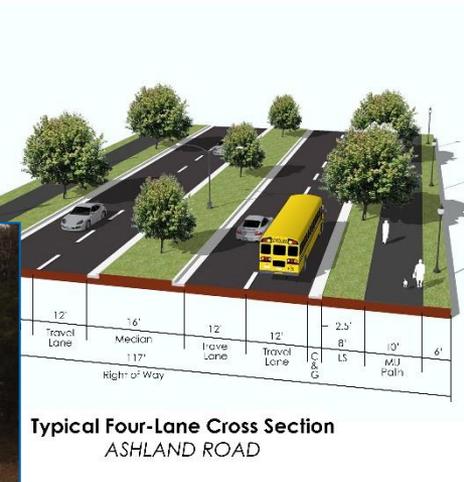
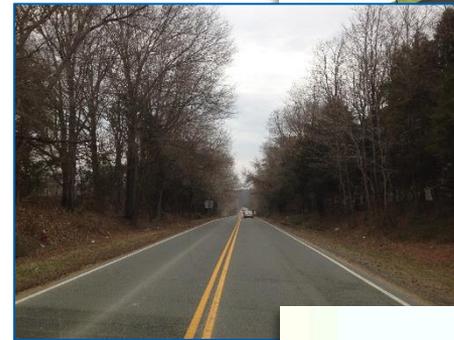
Recommendations

- Roadways
- Connectivity
- Access Management
- Interchange
- Intersections
- Travel Demand Management
- Policy

Major Roadway Recommendations

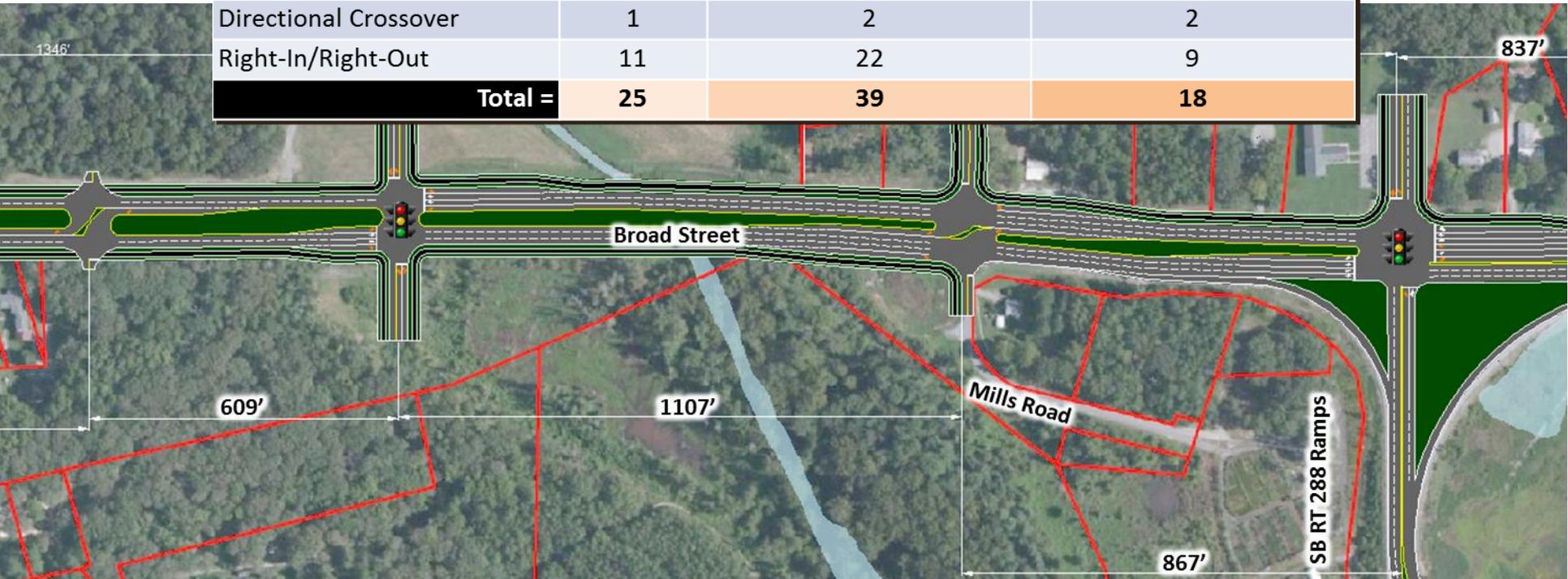
- **Widen Ashland Road from 2LU to 4LD**
 - » Already in Major Thoroughfare Plan
 - » Future volumes suggest 4 Lane demand occurs within 5 – 10 years
 - » Existing Right of Way = 90 to 150 feet

- **Three-Chopt Road**
 - » **Widen from 2LU to 4LD**
 - Upgrade in conjunction with development
 - Existing Right of Way = Prescriptive
 - » **Extend Across Route 288**
 - Conduct feasibility study of extension
 - Requires further study to determine scope improvements
 - Already in Major Thoroughfare Plan



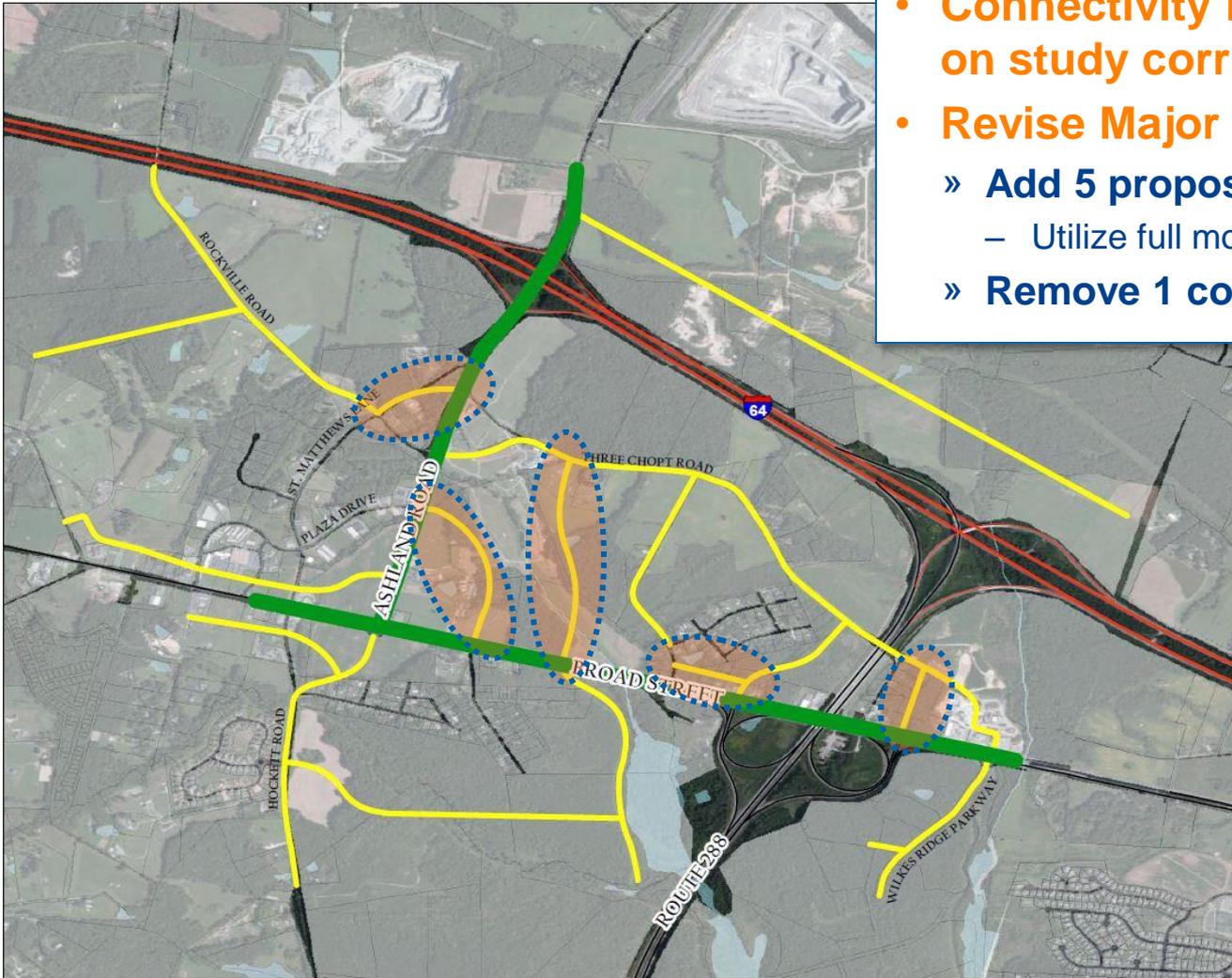
Access Management Recommendations

Type of Access	Broad Street		
	Number of Access Points		
	Existing Access	Allowed Access Based on VDOT Minimum Spacing Guidance	Proposed Access Based on Optimal Spacing
Signalized	3	6	7
Full Movement Unsignalized	11	2	0
Directional Crossover	1	2	2
Right-In/Right-Out	11	22	9
Total =	25	39	18



Connectivity Recommendations

- **Connectivity key to managing traffic on study corridors**
- **Revise Major Thoroughfare Plan**
 - » **Add 5 proposed connections**
 - Utilize full movement access points
 - » **Remove 1 connection**



Parcel Boundaries
Water Polygons

0 750 1,500 3,000 Feet

Coordinate System: GCS North American 1983
Datum: North American 1983
Units: Degree

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Kimley»Horn

Interchange Recommendations

Longer Term



- » Does not prohibit development within interchange area
- » Requires Interchange Modification Report

Other Recommendations

Intersection Recommendations

- » Turn Lanes
- » Traffic Signals - AMP potential for 11
- » Roundabouts

Bike & Pedestrian

- » Multi-Use Paths

Park & Ride Lots

- » VDOT owned parcel at Route 288 and Broad Street

Transit

- » As development occurs



2035 Comp Plan Map - 1 - Land Use - Centerville Village



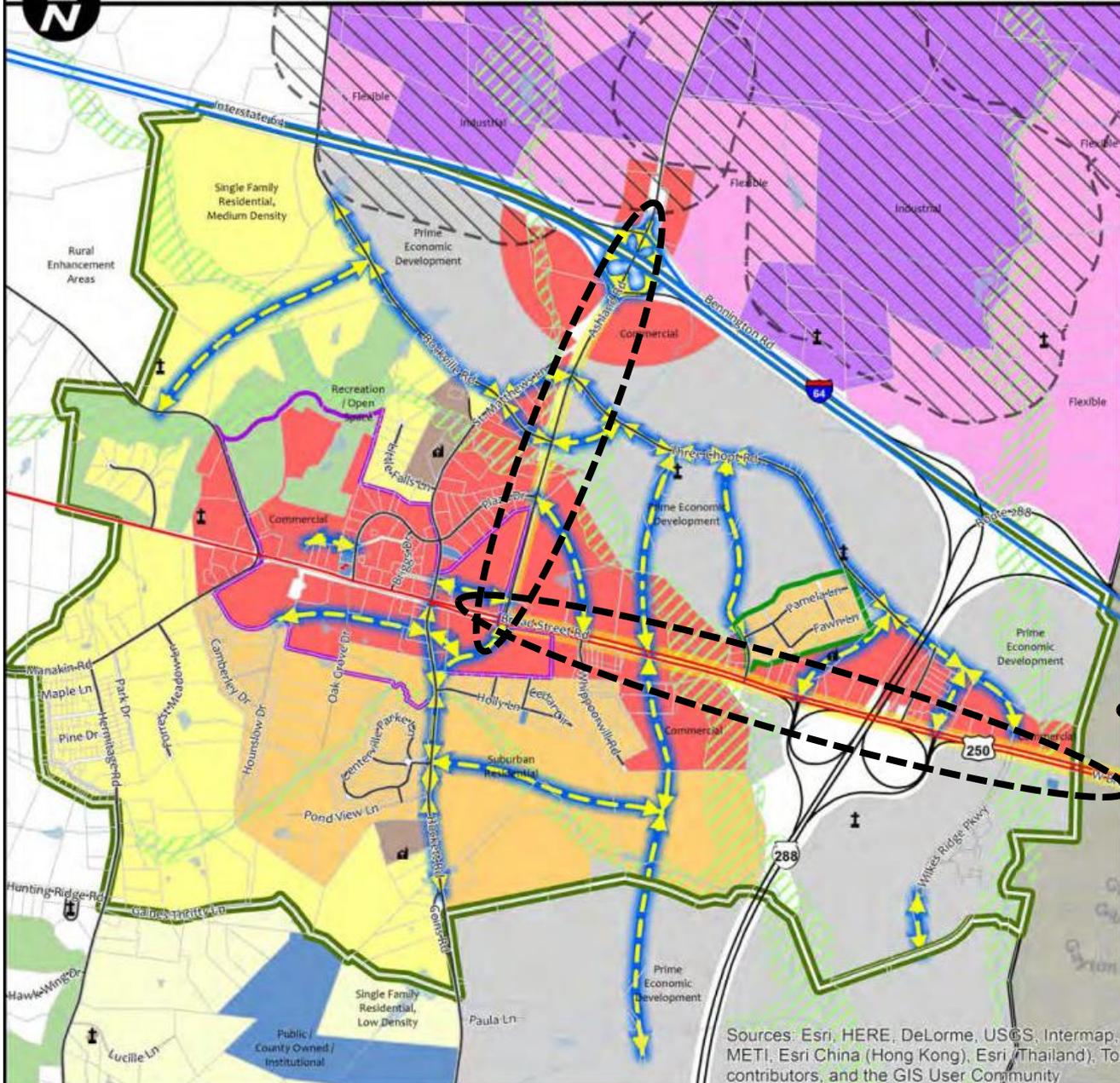
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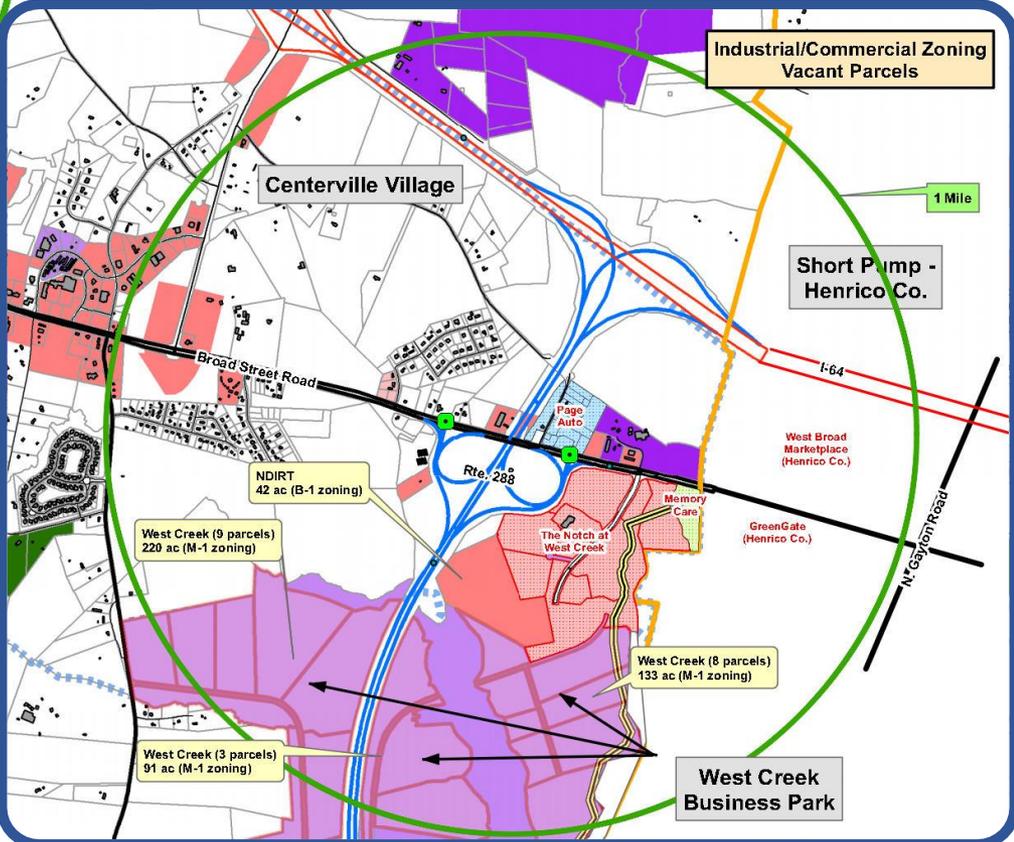
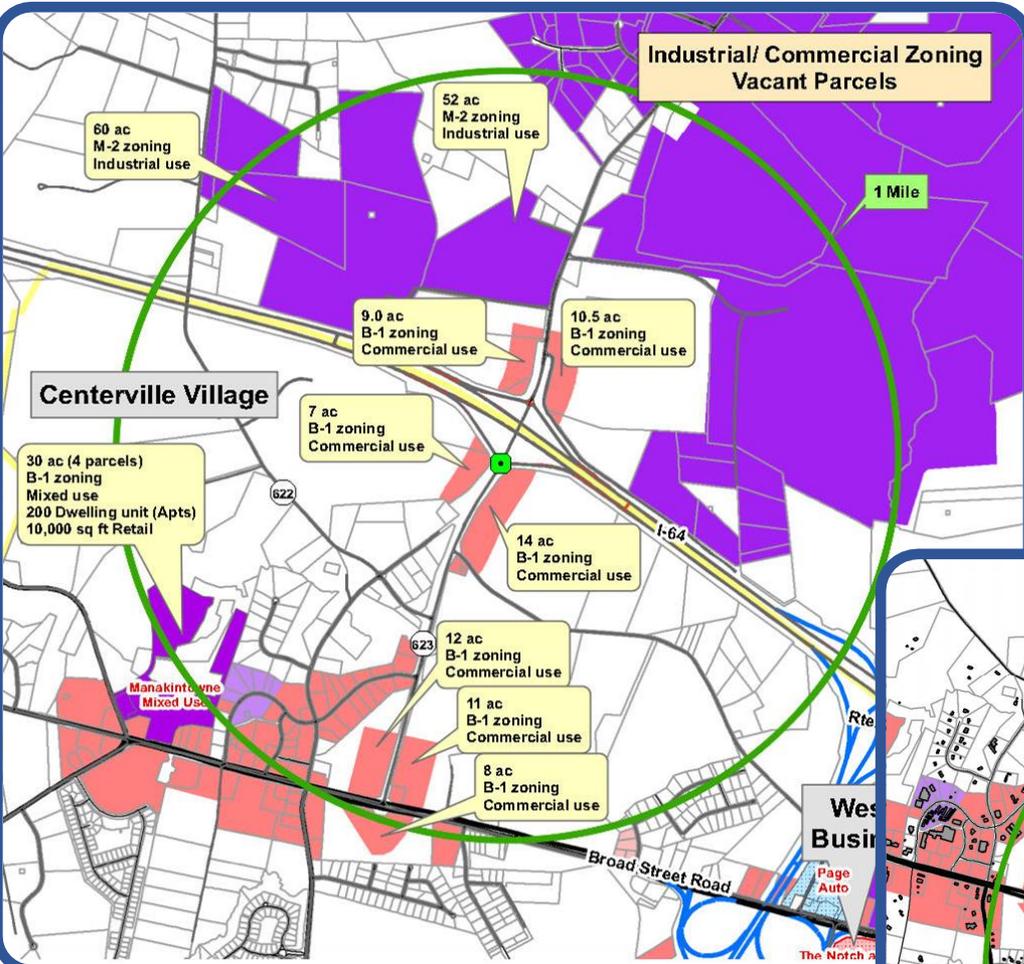
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HB2 Process

- Data Driven
- (2) Applications
- Recommended for funding



I-64/Ashland Rd Interchange IMR

RSTP

UPC: New Project #4

Analyze alternatives for interchange of I-64 and Route 623 in Goochland

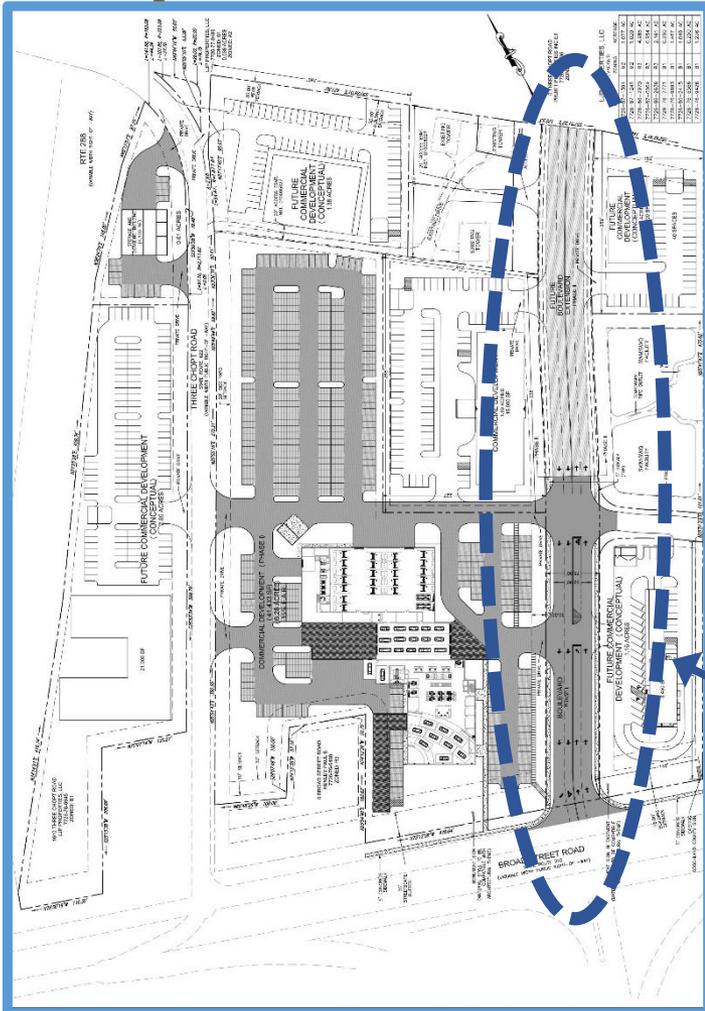
A detailed Interchange Modification Report is needed to identify viable alternatives for the upgrade of the I-64 interchange at Ashland Road. An IMR must be completed prior to a change in interstate access and must go through a transportation planning process. Work from this IMR will then be incorporated into the other phases of developing interchange improvements and will provide future guidance on how to proceed.



Automobile



Alternatives Study



Implementation:

- Funding

Implementation:

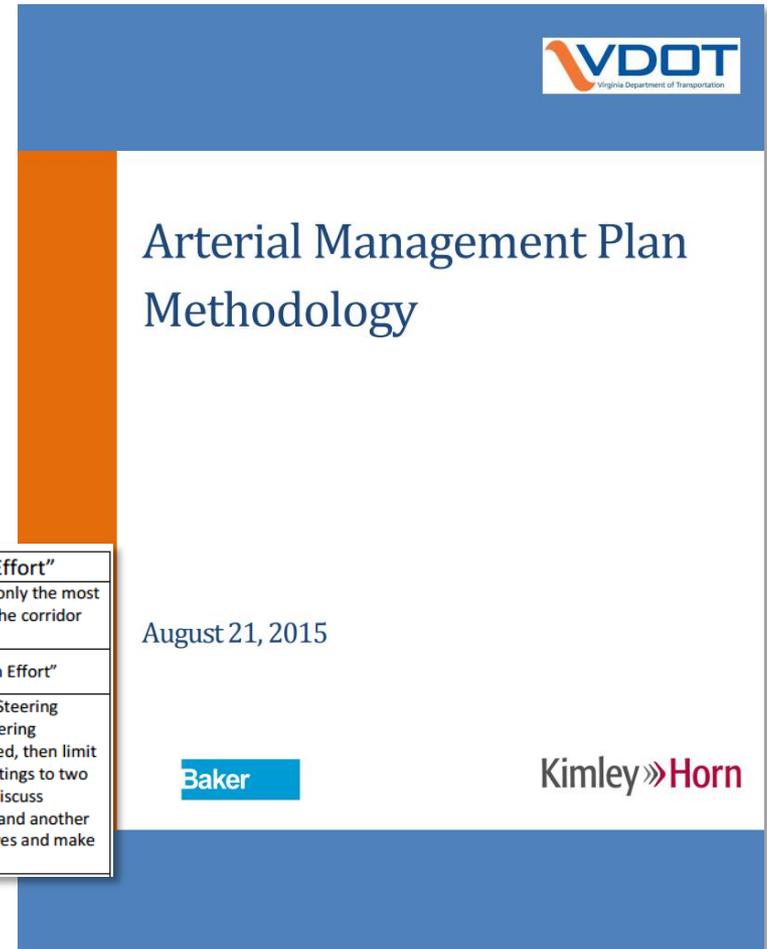
- Rezoning
- Conditional use Permit
- Private Investment

AMP Methodology Report

http://www.virginiadot.org/projects/arterial_management_plans.asp

- Procedures for development of future Arterial Management Plans
- Allows process to be replicated
- Includes minimum vs maximum effort strategies to accommodate varying budgets

Methodology Step	“Maximum Effort”	“Moderate Effort”	“Minimal Effort”
Task A. Establish Corridor Study Area (by VDOT)	Establish the study corridor as described in the steps under Task A.	Consider a smaller corridor length where development is most likely to occur.	Consider including only the most critical sections of the corridor being studied.
Task B. Establish AMP Goals for the Corridor (by VDOT)	Establish goals as described in the steps under Task B.	Same as “Maximum Effort”	Same as “Maximum Effort”
Task 1. Establish a Project Steering Committee	Establish Project Steering Committee as described in the steps under Task 1. Up to Six Meetings	Reduce number of meetings to 4 meetings.	Consider a smaller Steering Committee. If a Steering Committee is created, then limit the number of meetings to two meetings. One to discuss existing conditions and another to review alternatives and make recommendations.





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