Improving Communities Through Transportation Decisions: What You Need To Know

Presented By:

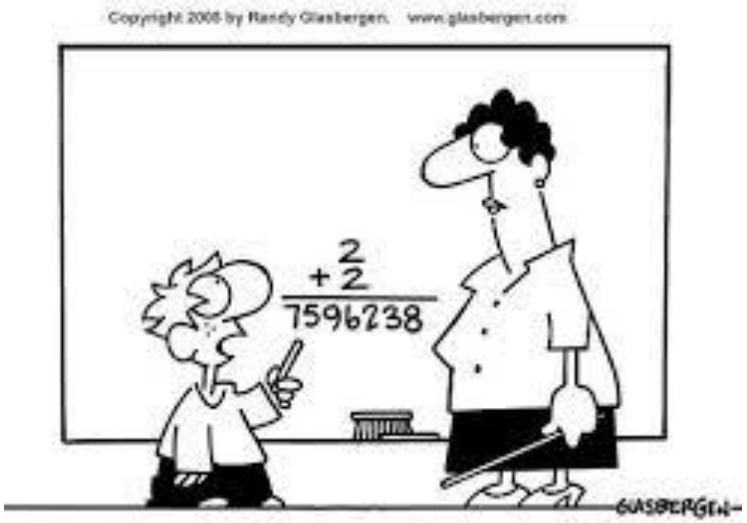
Creighton Manning

Agenda

- Intro
- Big picture trends
- Complete streets
- Access management

  - Break -

- Traffic impact study
- Right-of-way
- Questions & Answers



"In an increasingly complex world, sometimes old questions require new answers."

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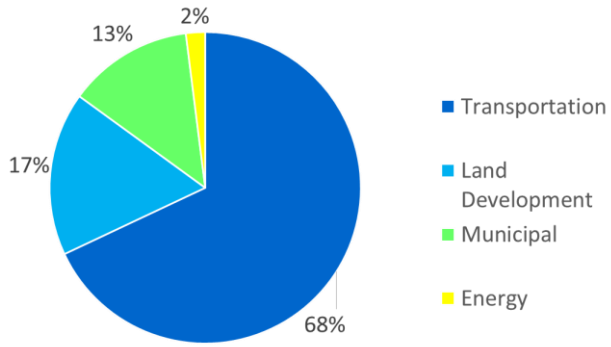
- Company Profile
  - Albany, New York
  - 50 Years Experience
  - 70 Employees
- Services
  - Transportation Planning and Engineering
  - Site/Civil Engineering
  - Surveying
  - Construction Inspection
- Markets
  - Transportation
  - Land Development
  - Municipal
  - Energy



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- Great Place to Work
- Social Responsibility
  - Adopt-A-Highway Program
  - CANstruction to benefit The Food Pantries for the Capital District
  - Annual Corporate Challenge to support charity
  - St. Paul's Center holiday donations
  - Future City Competition for engineering students

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Award winning projects

Fuller Road and Washington Avenue, Albany

Luther Forest Technology Campus Roads, Malta

CDTA Bus Rapid Transit, Albany and Schenectady

ITS Signal Improvements, Troy

Representative Local Experience

- Marlboro Hamlet Area Transportation Plan
- Saugerties Area Mobility Analysis
- Route 32/Fair Street Intersection Alternatives Analysis
- Washington Avenue Corridor Study
- Town Traffic Engineer Ulster Planning Board

Abeel Street, Kingston

Marlboro Hamlet

Beyond Traffic 2045

TRENDS AND CHOICES

U.S. Department of Transportation

Population Increase

2015: **320 million people**
2045: **390 million people**

In 30 years our population is expected to grow by about

70 million

... that's more than the current populations of

Bumper-to-Bumper

On average, we spend

over
40 hours
stuck in traffic each year

The annual financial cost of congestion is

$121 billion

Older Americans — Redefining Longevity

By 2045, the number of Americans over age 65 will increase by

77%

About **one-third of people over 65** have a disability that limits mobility. Their access to critical services will be more important than ever.

Millennials — Shaped by Technology

There are **73 million Millennials** aged 18 to 34. They are the first to have access to the internet during their formative years and will be an important engine of our future economy.

Millennials are driving less. By the end of the 2000s, they drove over **20% fewer** miles than at the start of the decade.

Income Inequality

10% of the population takes home **one-third** of our national income.

Transportation is the **second-largest** expense for U.S. households.

Megaregions and Shifts in Population Centers

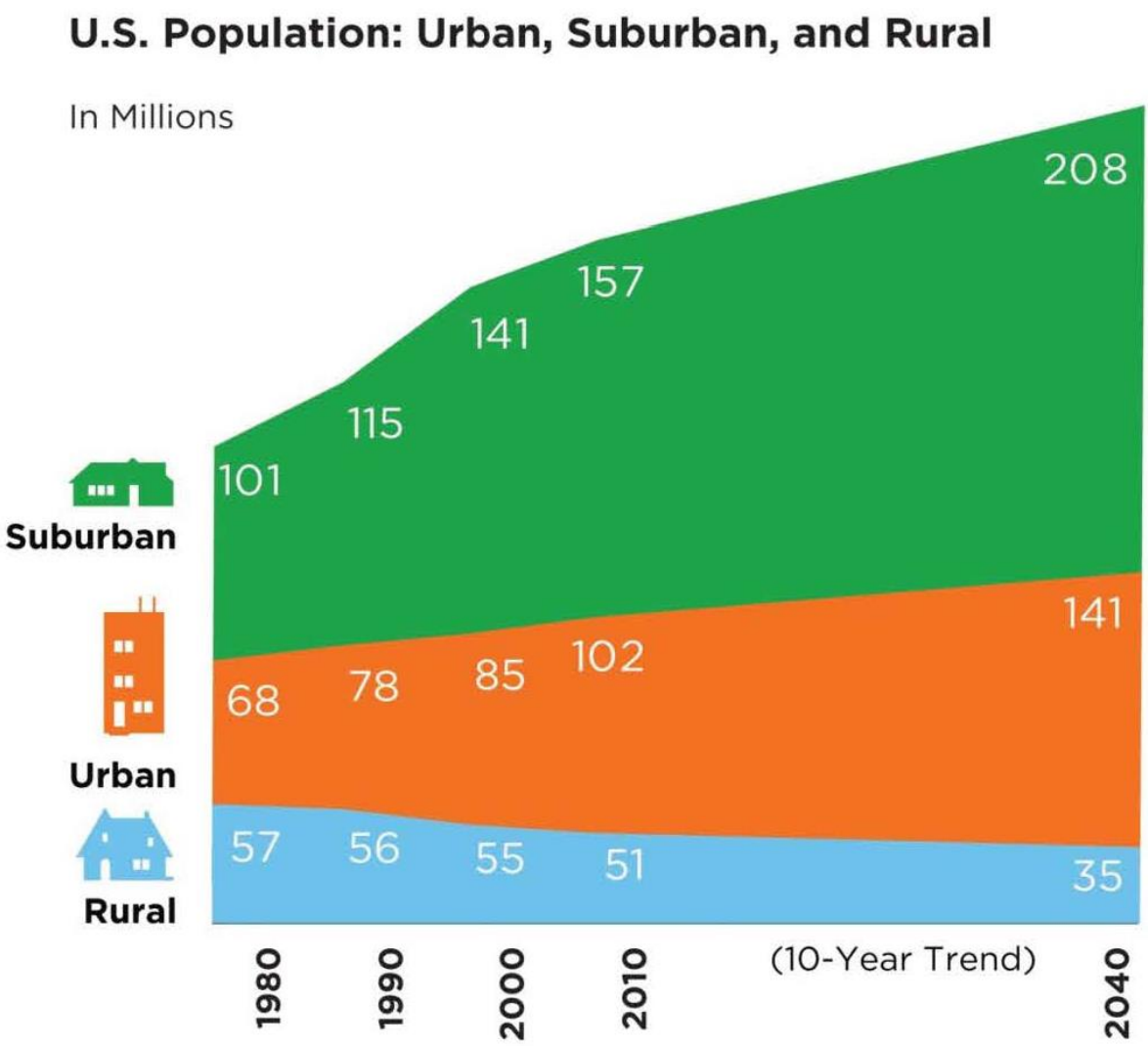
11 megaregions are linked by transportation, economics, and other factors.

They represent over **75%** of our population and employment.

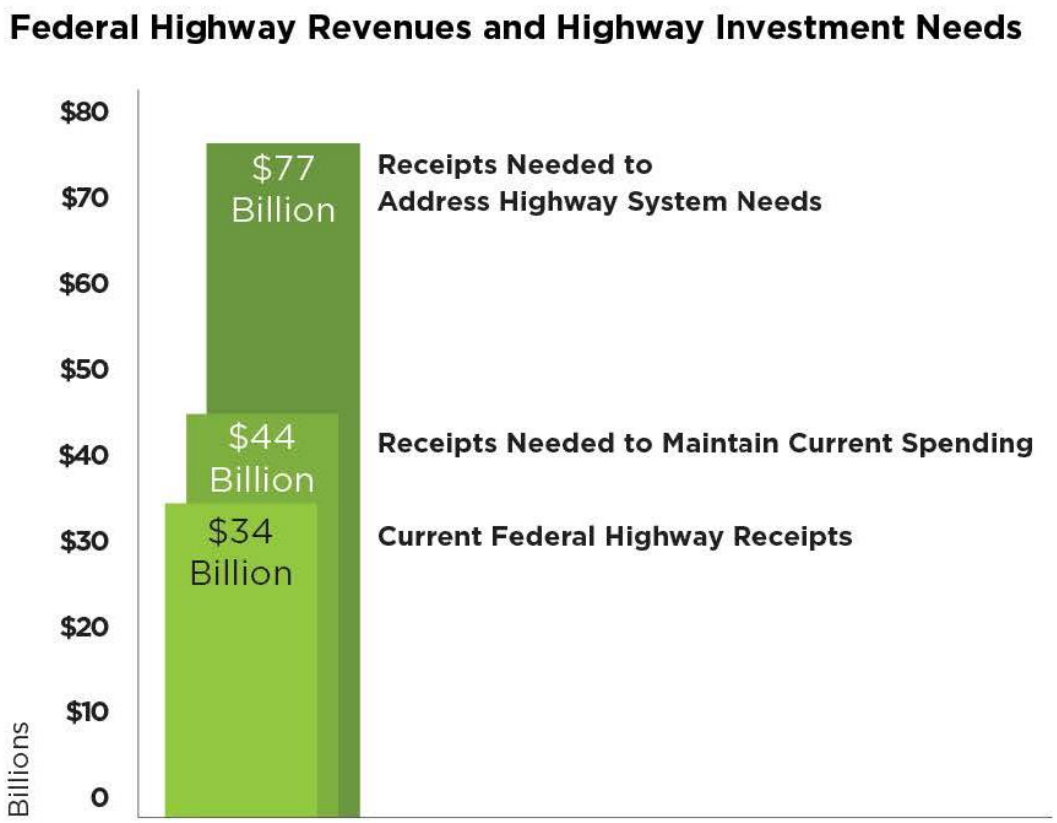
In 2014, **365,000** people moved to the South—up **25%** from 2013—and moves to the West doubled.

Population

Despite a trend towards increasing population growth in cities over the past decade, our national population will likely remain largely suburban.

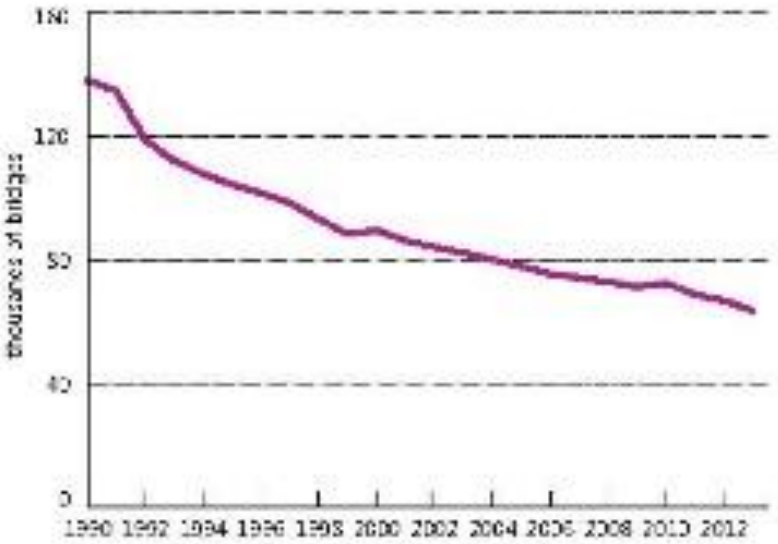


Funding

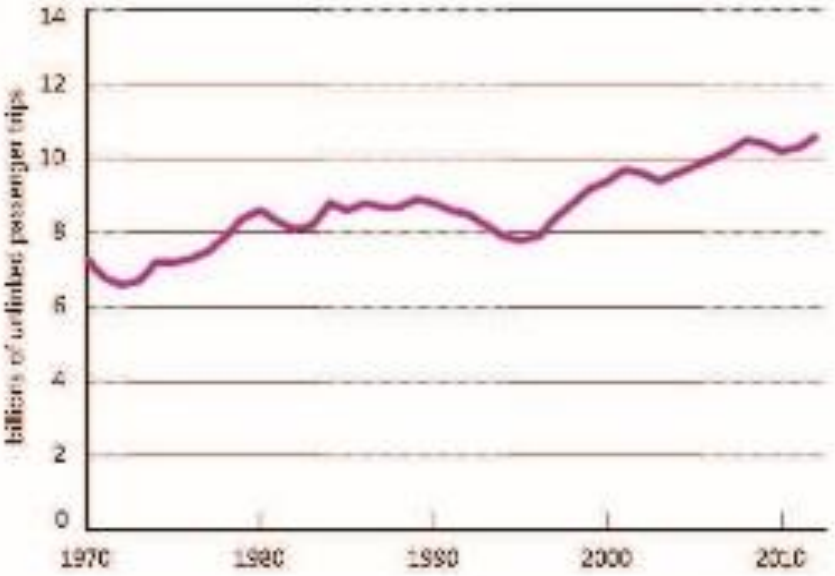


The Federal Highway Administration has estimated that approximately $77 billion in annual investment is needed to meet the needs of our federal-aid highway system.

1-6 Structurally Deficient Bridges: 1990–2013

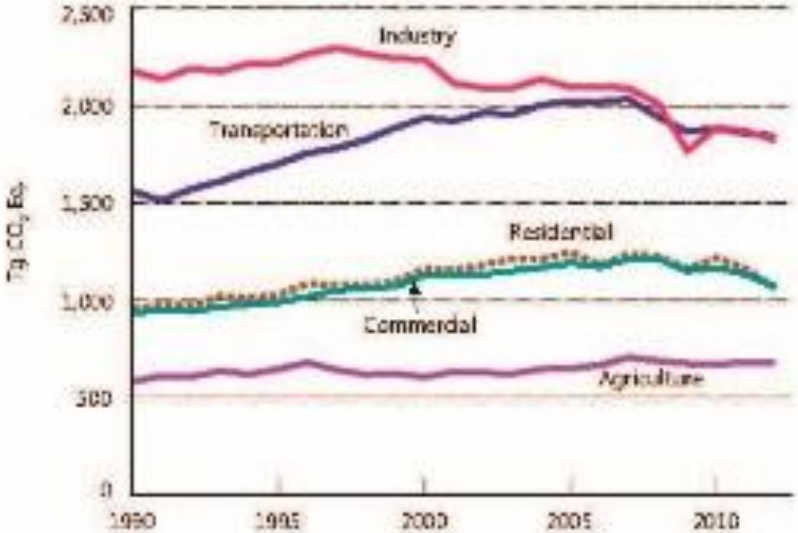


2-4 Transit Ridership: 1970–2012

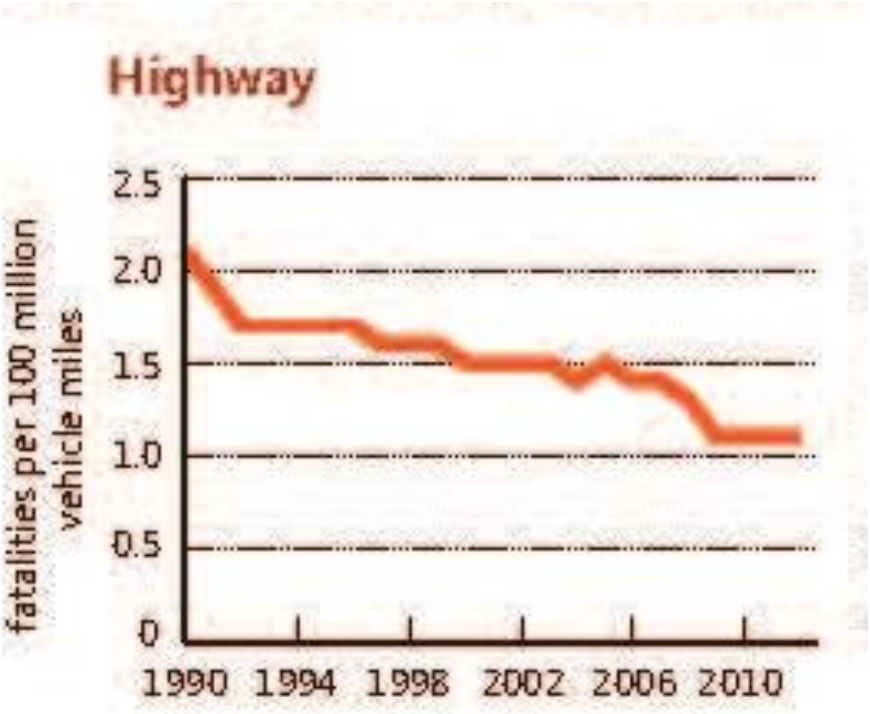


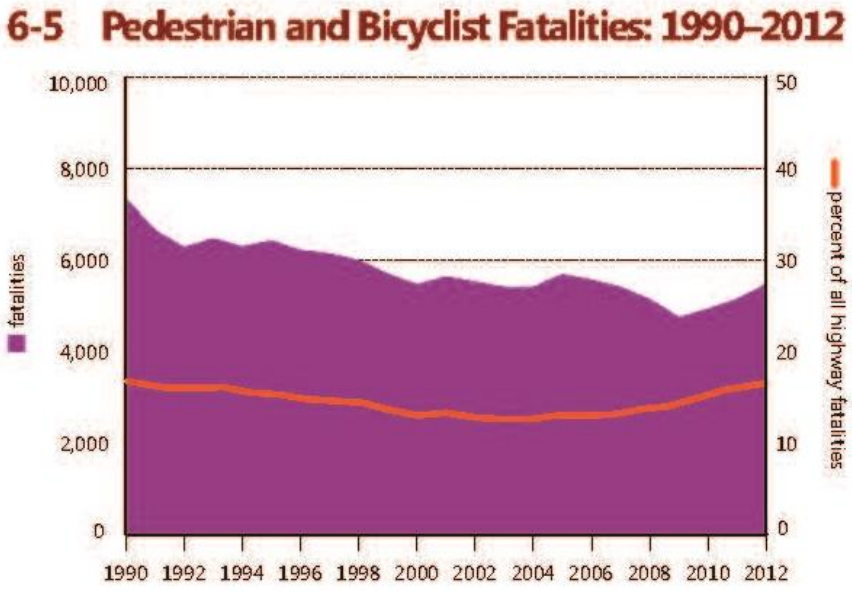
4-1 Road Congestion: 1985–2011

7-4 Greenhouse Gas Emissions by Sector: 1990–2012

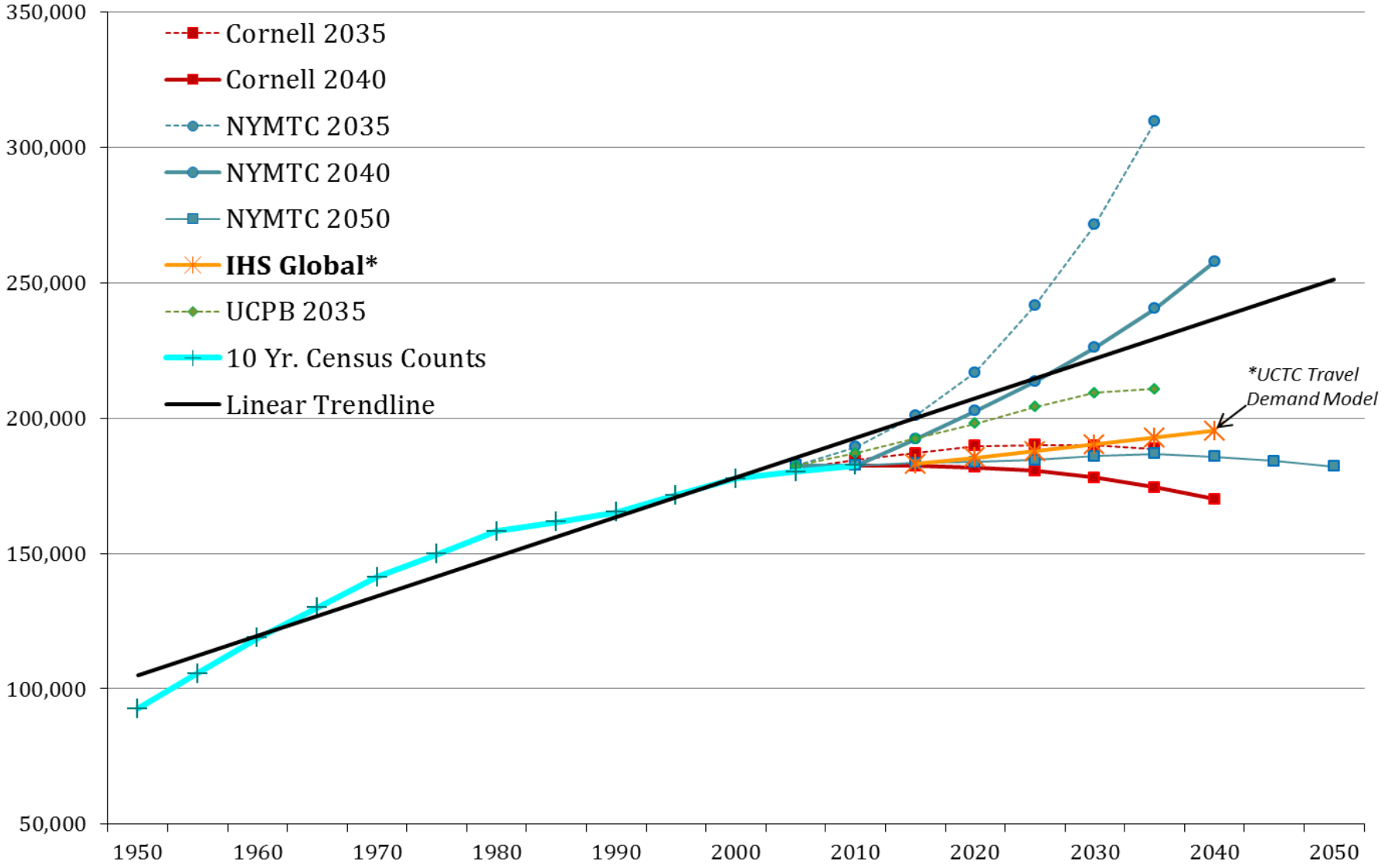


Fatalities 1990 - 2012

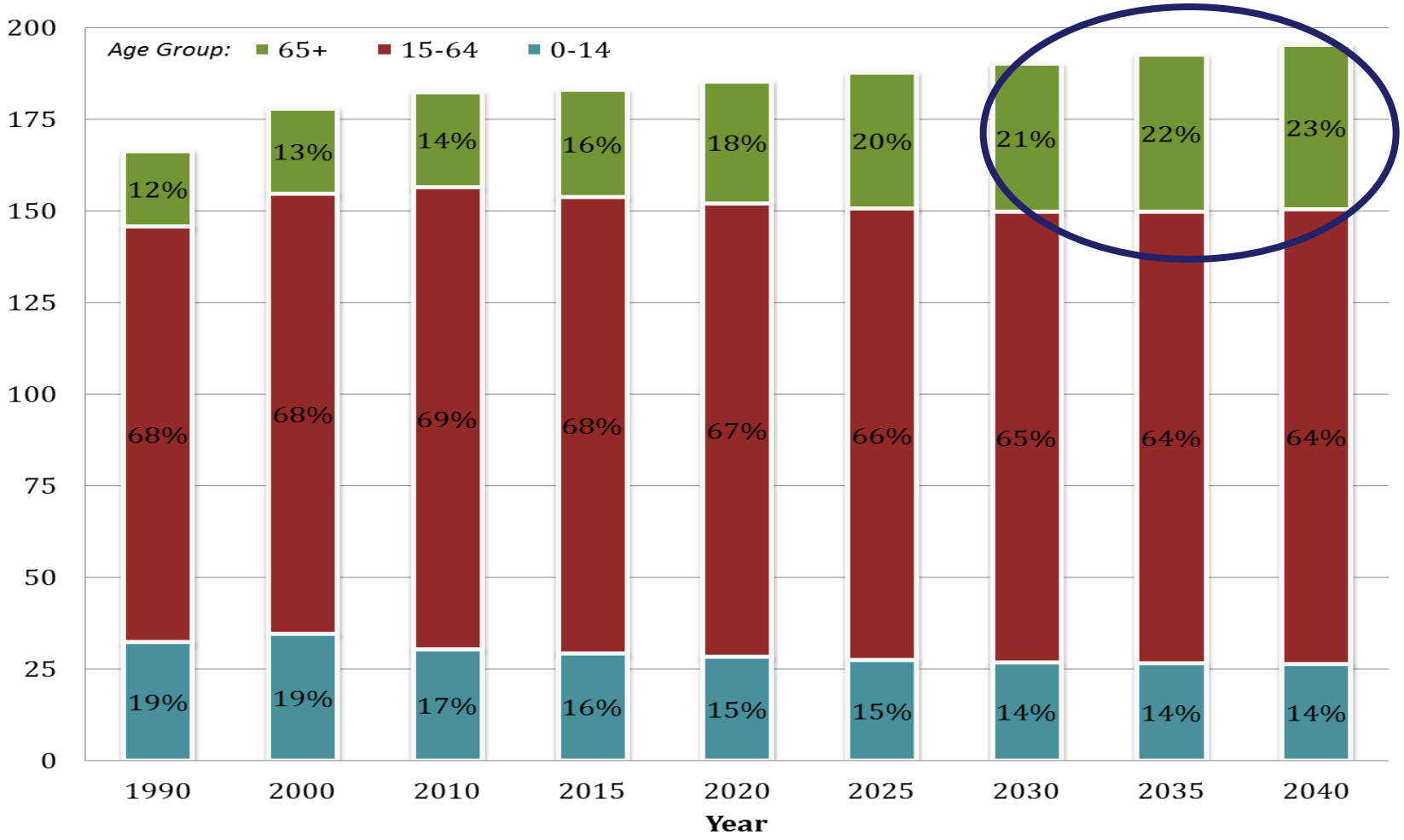




Ulster County Population Trends



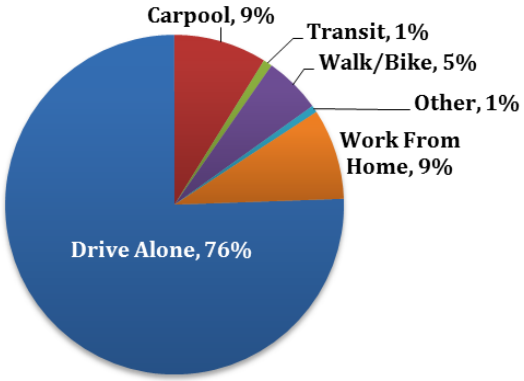
Ulster County Population Trends



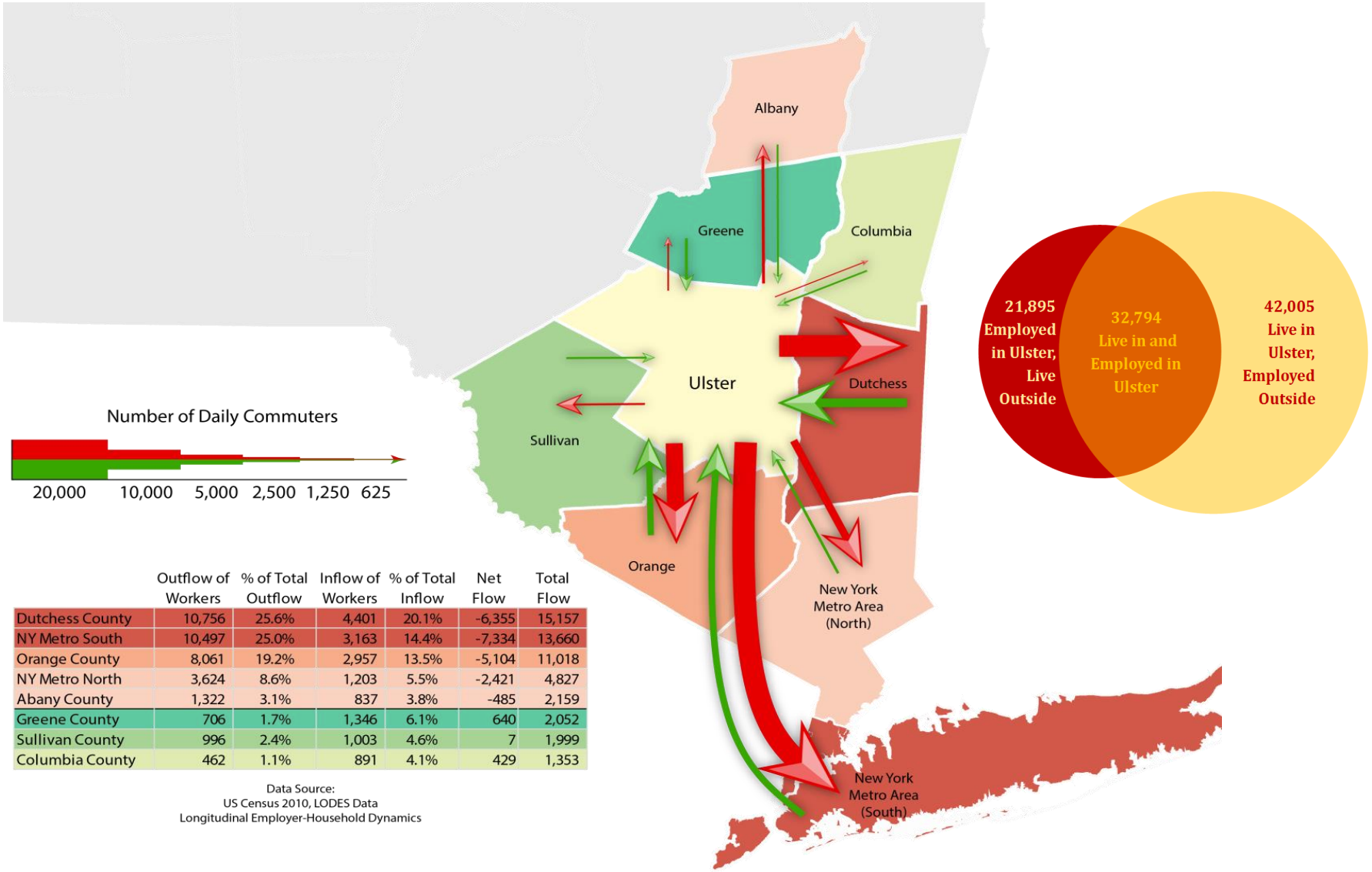
Slower Growth – Aging Population

How We Travel

- By **car** on roads that are only occasionally congested
- By **bus** on UCAT, Kingston Citibus, Trailways
- By **bike** on streets and trails
- By **foot** on sidewalks and trails



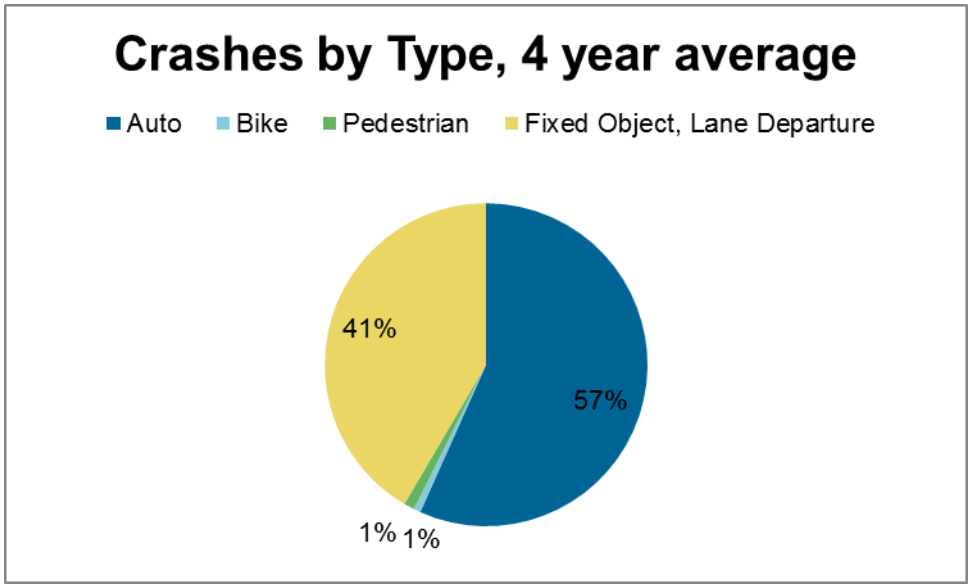
Commutation Pattern



	Outflow of Workers	% of Total Outflow	Inflow of Workers	% of Total Inflow	Net Flow	Total Flow
Dutchess County	10,756	25.6%	4,401	20.1%	-6,355	15,157
NY Metro South	10,497	25.0%	3,163	14.4%	-7,334	13,660
Orange County	8,061	19.2%	2,957	13.5%	-5,104	11,018
NY Metro North	3,624	8.6%	1,203	5.5%	-2,421	4,827
Abany County	1,322	3.1%	837	3.8%	-485	2,159
Greene County	706	1.7%	1,346	6.1%	640	2,052
Sullivan County	996	2.4%	1,003	4.6%	7	1,999
Columbia County	462	1.1%	891	4.1%	429	1,353

Data Source:
US Census 2010, LODES Data
Longitudinal Employer-Household Dynamics

Safety for All Users

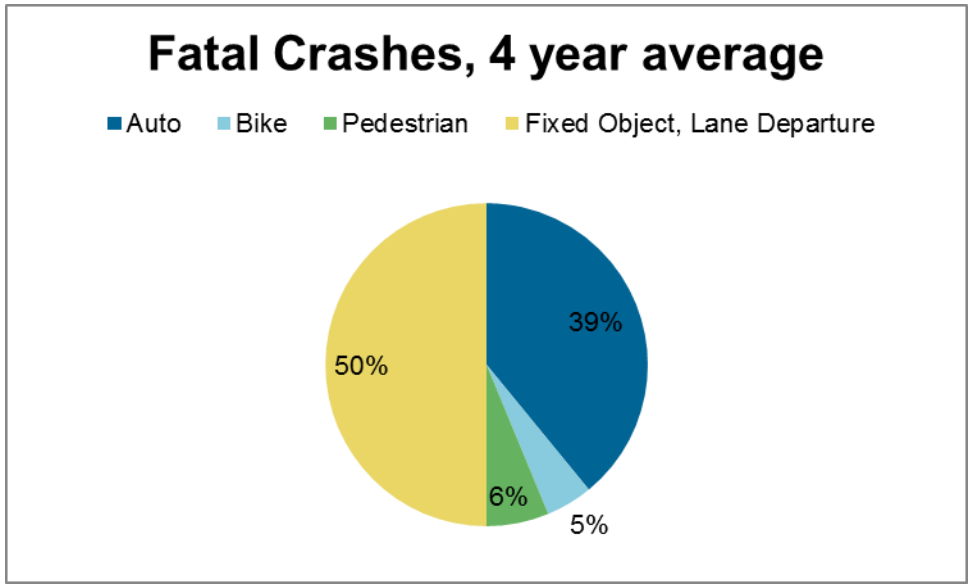


2011 – 2014 Data

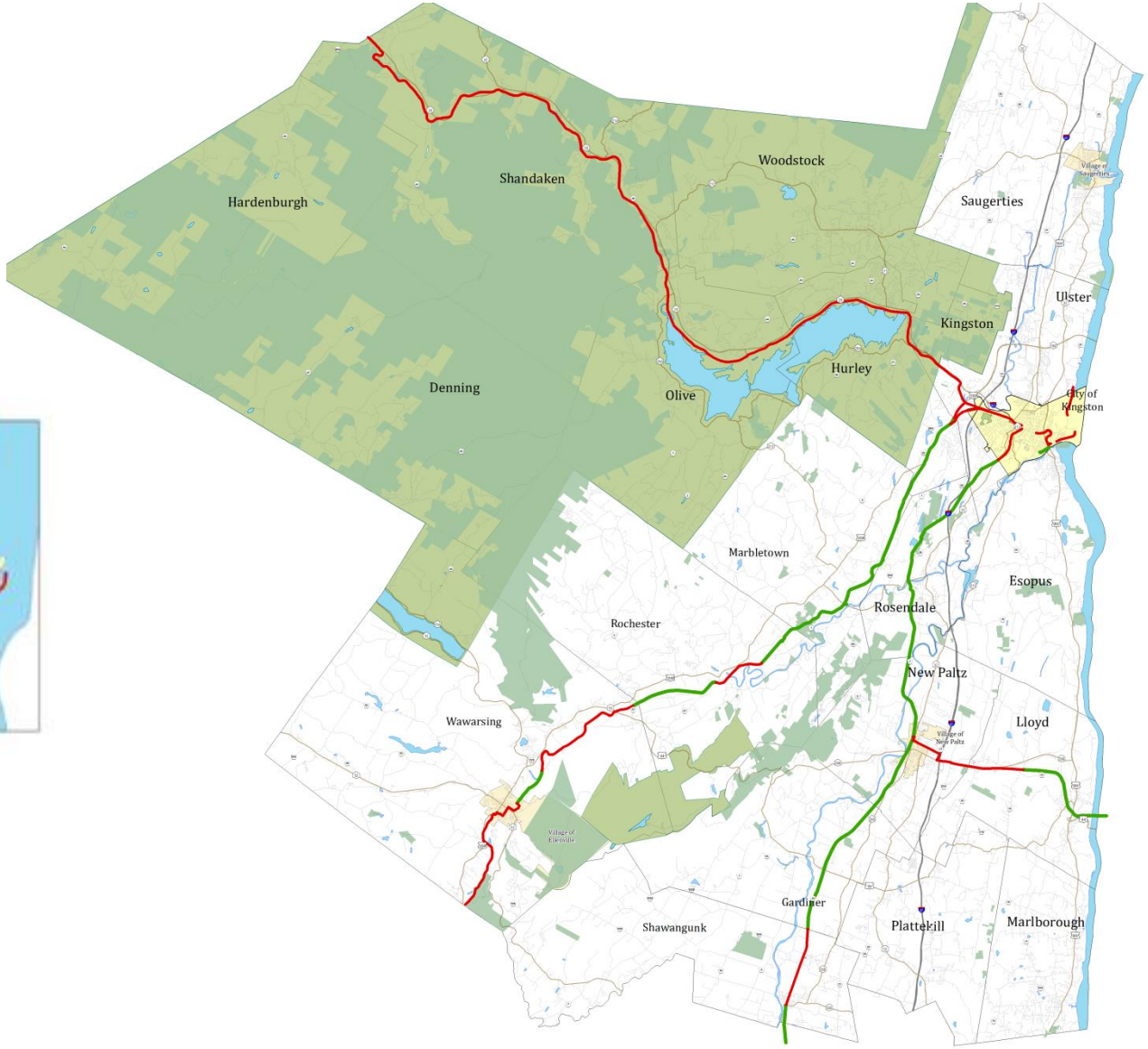
7,129 Crashes/year

16 Fatal rashes/year

1,799 Injury crashes/year



A Regional Non-motorized Transportation System



What should we do?

- Build road improvements in congested areas
- Improve quality of transit
- Coordinate with human service transportation services
- Integrate transportation and land-use planning
- Support alternatives to auto travel
- Congestion pricing and toll revenue
- Adopt policies and technologies that reduce congestion

National EV Ownership

Source: U.S. Energy Information Administration, based on Federal Highway Administration data and R.L. Polk & Company

SUSTAINABLE ULSTER COUNTY

COUNTY EXECUTIVE MICHAEL P. HEIN

Ulster County Fleet

- Green Fleet Policy sets goal of 5% of overall fleet must be a green vehicle by 2020. Thereafter 20% of new purchases (passenger) must be green vehicles.
- Charging Stations at all main County buildings and SUNY Ulster campus, and will provide necessary infrastructure as well as flexibility to try vehicles with other departments.
- Increasing availability of cost-competitive plug-in hybrids and BEVs.

SUSTAINABLE ULSTER COUNTY

COUNTY EXECUTIVE MICHAEL P. HEIN

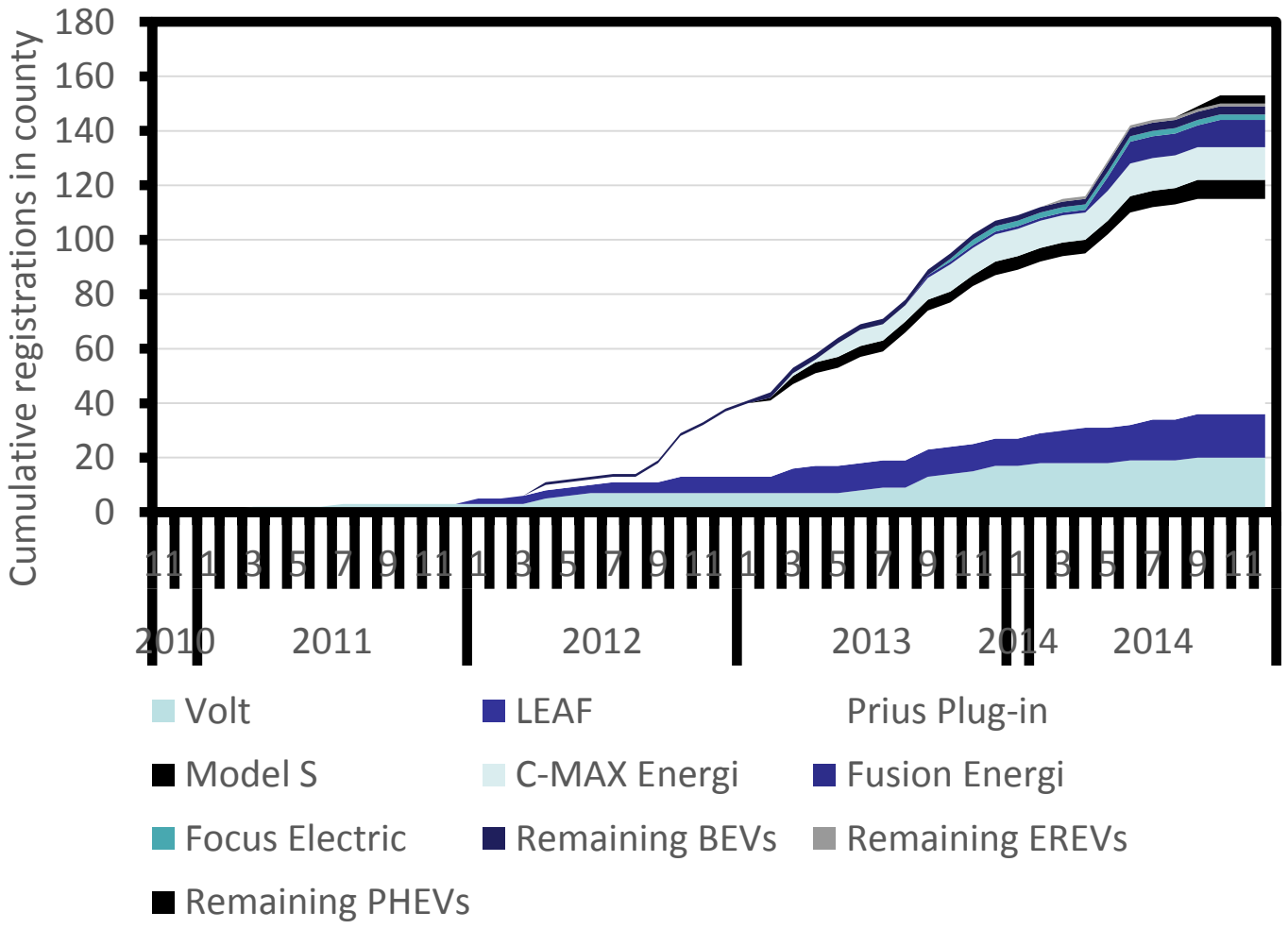
Ulster County Fleet

- Road Maintenance (paving, plowing)
- UCAT smaller buses and hybrid buses
- Social Services, visits to elderly, transport of veterans to medical appointments
- Sheriff Road Patrol

SUSTAINABLE ULSTER COUNTY

COUNTY EXECUTIVE MICHAEL P. HEIN

Ulster County EV Ownership

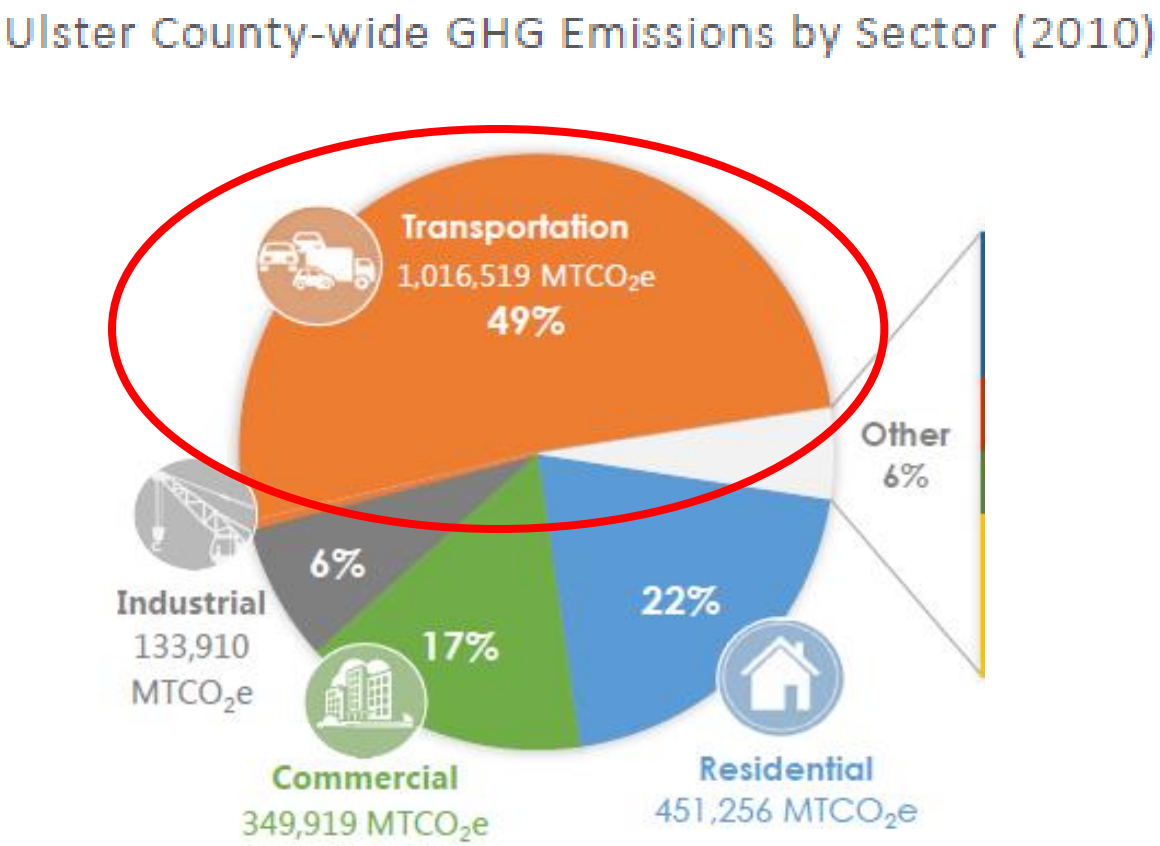


- 153 EVs in Ulster County (2014)
- 1019 Hybrids (purchased in same time period)
- 129,583 registered vehicles in County

SUSTAINABLE ULSTER COUNTY

COUNTY EXECUTIVE MICHAEL P. HEIN

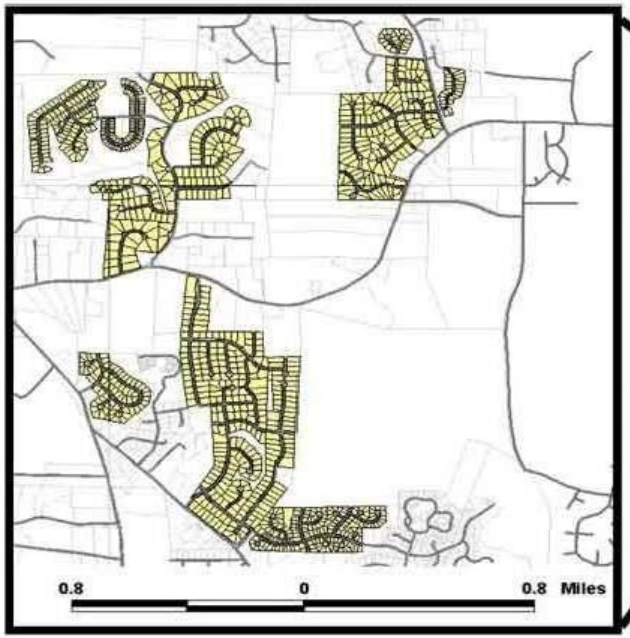
Local Residents



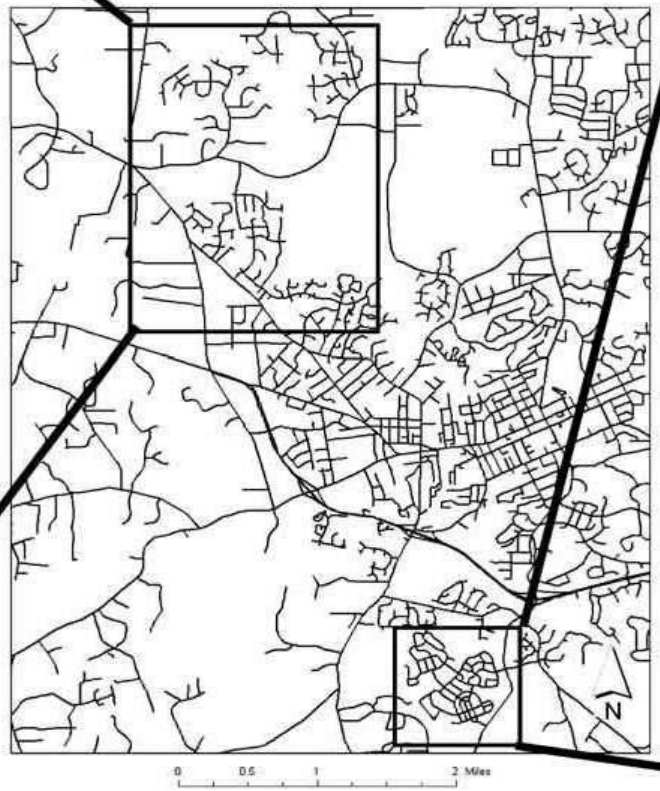
SUSTAINABLE
ULSTER COUNTY
COUNTY EXECUTIVE MICHAEL P. HEIN

Land Use – Transportation Connection

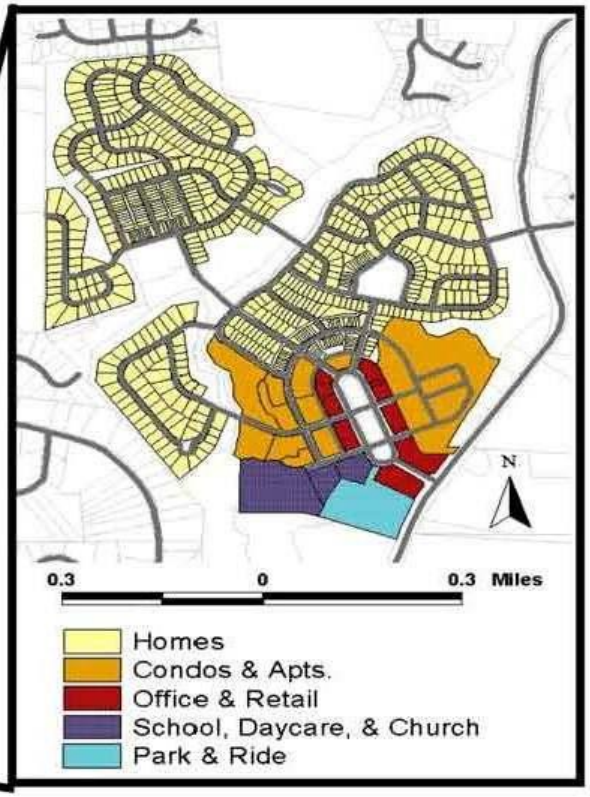
Case Study – Two NC Neighborhoods



Conventional Neighborhoods
(Northern Carrboro)

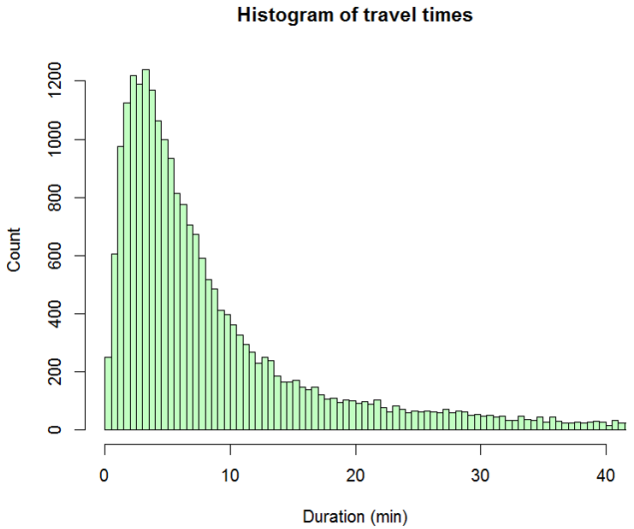


Neo-traditional Neighborhood
(Southern Village)



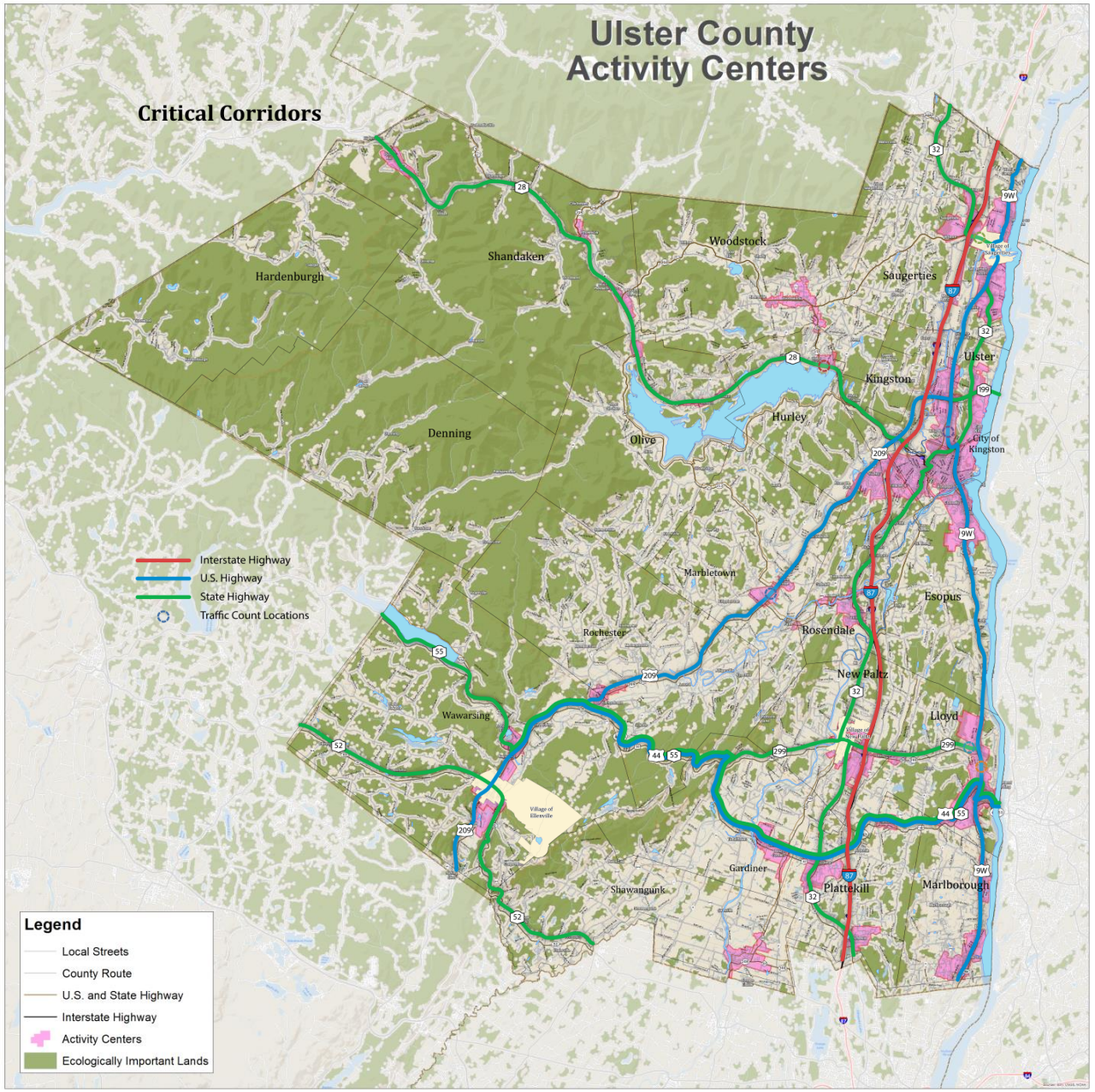
Case Study

- Comparable trips overall (+ 10 %)
- Comparable time spent traveling
- Fewer miles traveled
- 13 percent fewer auto trips
- More than 2 times as many walking trips
- 24 percent fewer external trips
- Land use can affect transportation



Source: Travel Behavior in Neo-Traditional Neighborhood Developments: A case study in USA, Carolina Transportation Program, Department of City and Regional Planning, UNC

- Growth in and around existing centers
- Concentrated along Critical Corridors
- Most areas with water and sewer
- Much of the County remains rural agricultural

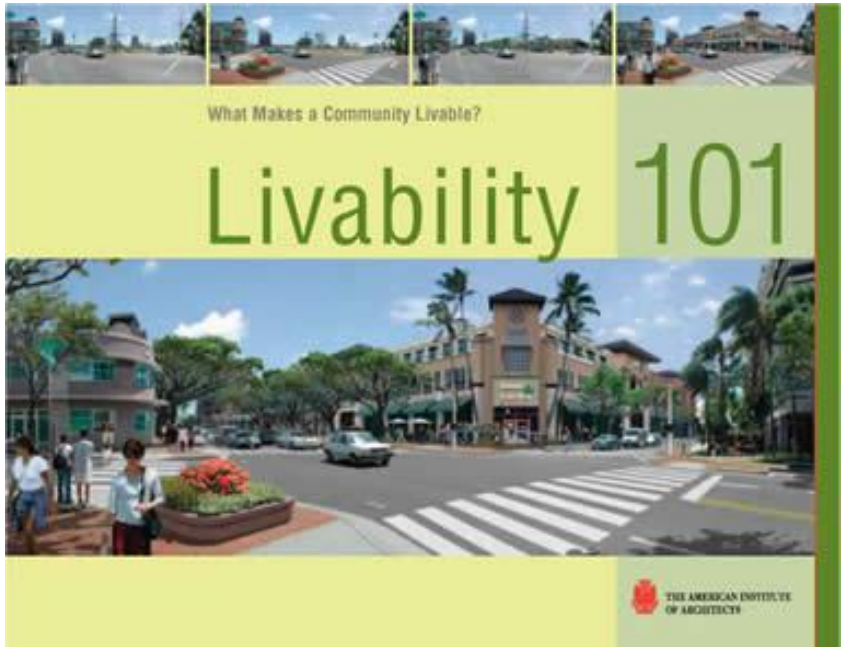


ITE Trip Generation Research

- **D**evelopment size
- **D**ensity
- **D**iversity – mix of housing, jobs, retail
- **D**esign – connectivity, walkability
- **D**estinations – regional accessibility
- **D**istance to transit – rail, bus proximity
- **D**emographics – household size, income

Municipal Tools

- Comprehensive plans
- Zoning map and regulations
- Site plan review and approval process
- SEQRA & GEIS
- Local planning



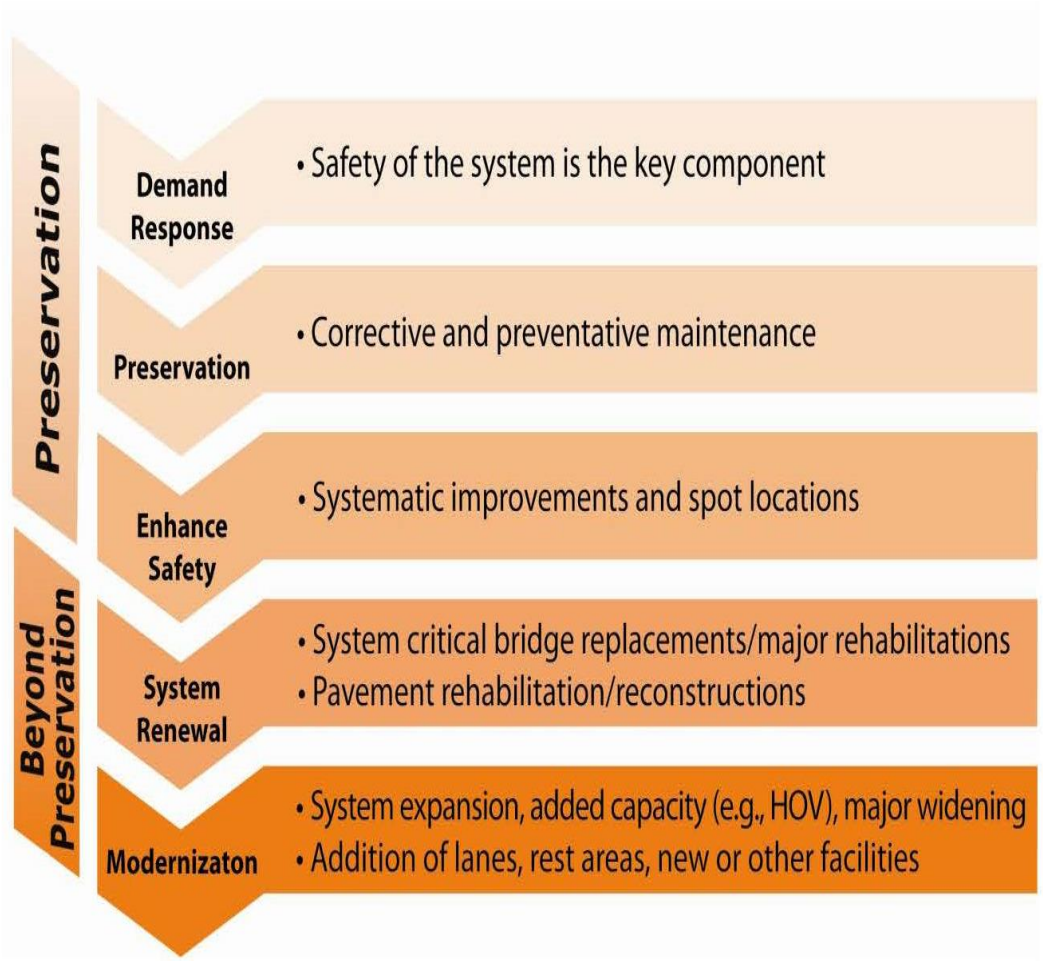
Sustainability and Resiliency

NYSDOT Forward Four

- Guiding principles for decision making
- Provide best possible transportation system to customers
- Safety as common theme
- Improve livability and economic development in context of limited financial resources

Hierarchy of Priorities

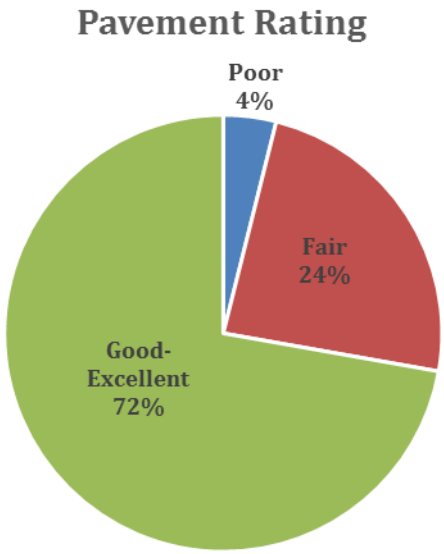
- Preservation First
- Beyond Preservation strategically address critical replacements and capacity needs.

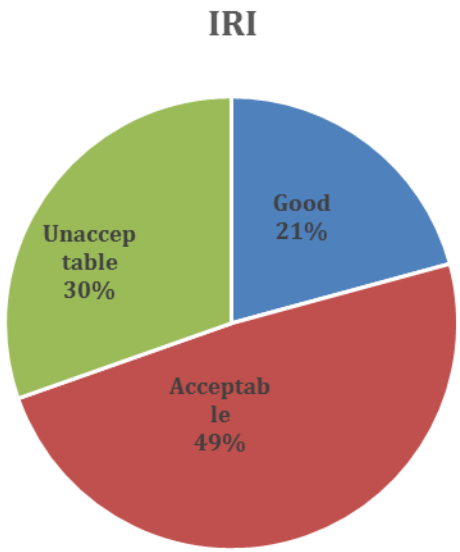


Our Roadways

Jurisdiction	Centerline Miles	Percentage
NYSDOT	293.33	13%
County	422.64	18%
Town	1,414.68	60%
City or Village	125.82	5%
Other State Agencies	9.3	0%
Other Local Agencies	27.8	1%
NYS Thruway	46.6	2%
Other Toll Authority	1.62	0%
Bureau of Fish and Wildlife	0.03	0%
Army	0.12	0%
Total	2,341.94	100%

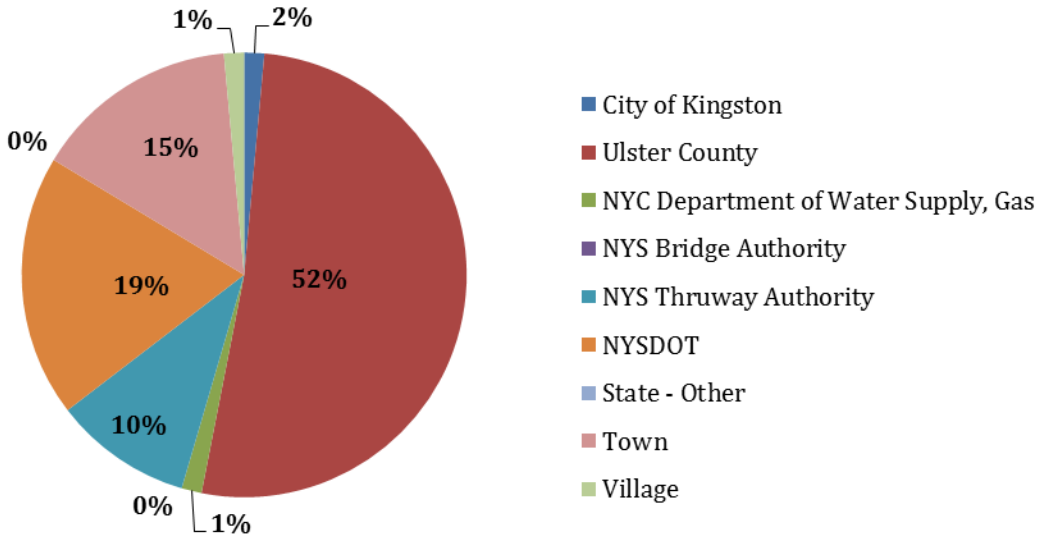
State Routes





And Bridges

Owner	#of Bridges	% Functionally Obsolete	% Structurally Deficient
City of Kingston	1	0%	100%
Ulster County	154	12%	23%
NYC Department of Water Supply, Gas	10	20%	10%
NYS Bridge Authority	3	67%	0%
NYS Thruway Authority	30	47%	23%
NYSDOT	109	22%	12%
State - Other	1	0%	0%
Towns	73	26%	14%
Villages	4	0%	25%
Total	385	21%	18%



Resiliency

Irene in Schoharie (L)
and Ulster (R) Counties

What Is Resiliency?

- The ability in a natural or manmade disaster for the transportation system to meet basic needs for:
  - Evacuation
  - Emergency response
  - Short term recovery
  - Long term recovery

Key Strategies

- Resiliency
  - Redundancy: to what extent can the transportation system absorb the loss of a facility?
  - Adaptation: to what extent can infrastructure be redesigned to avoid flood or storm surge damage?
- Climate Change
  - Retreat
  - Elevate
  - Reinforce

The Resiliency Perspective

- Evaluate the capabilities of the transportation system and users, not of individual facilities.
- Define a set of facilities that can provide necessary service regardless of ownership

- Tools
  - Network Robustness Index - Models additional travel time
  - Flood Vulnerability Assessment - River and coastal flooding
  - Economic Impact Analysis – Recognizes value of trip

Funding Challenges

- FHWA Emergency Relief Program
  - Primarily funds restoration or replacement in-kind
  - Betterments can be justified

- FEMA Public Assistance program
  - Reimburses governmental agencies for infrastructure damage when there is a Disaster Declaration.
  - FEMA can help pay to restore facilities through repair or Improvements can be incorporated in the project, but the owner pays the full cost.

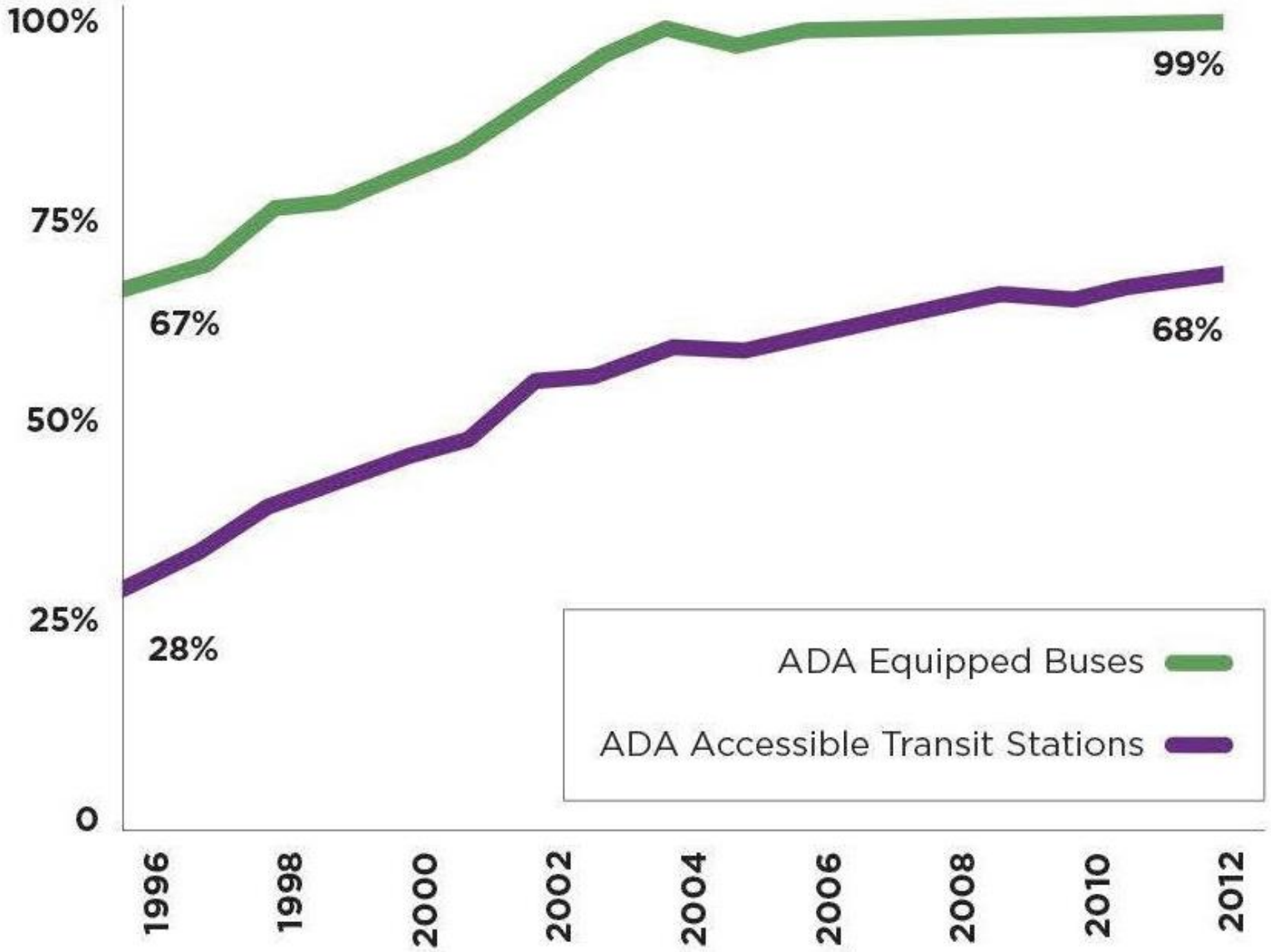
Benefit of Resiliency Planning

- Provides a more robust alternative to a facility-based, “repair or replace in-kind” approach
- Gives states a risk-based method for selecting investments to support service delivery in extreme events
- Gives residents and business owners an understanding of how their mobility needs will be addressed

Transit

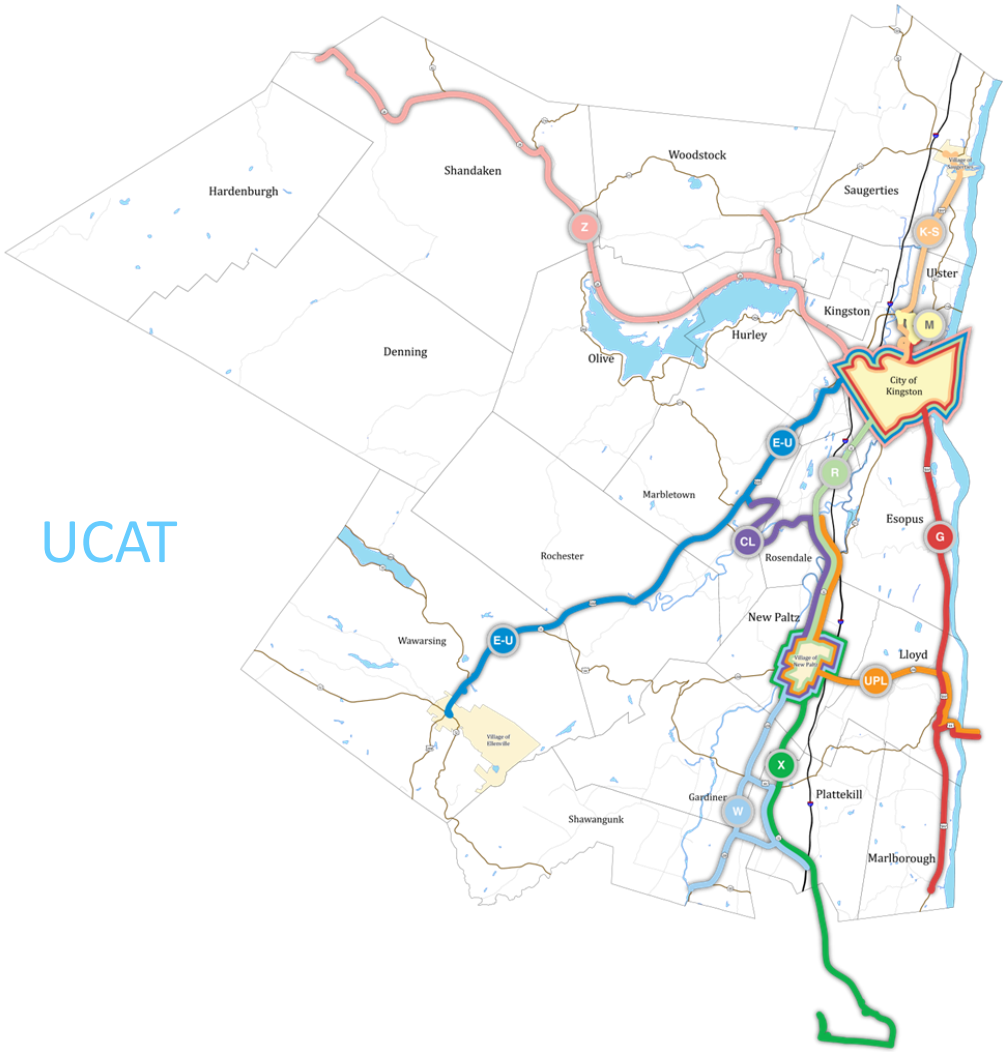

CDTA
BUS STOP
905 BUSPLUS
Limited Stop Service
busplus
5511H

Transit Accessibility for Americans with Disabilities in the U.S. (1996 – 2012)

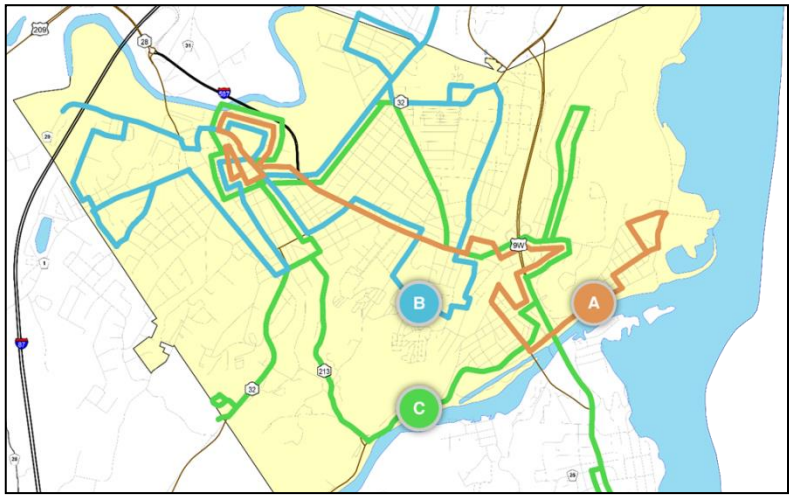


Public Transit

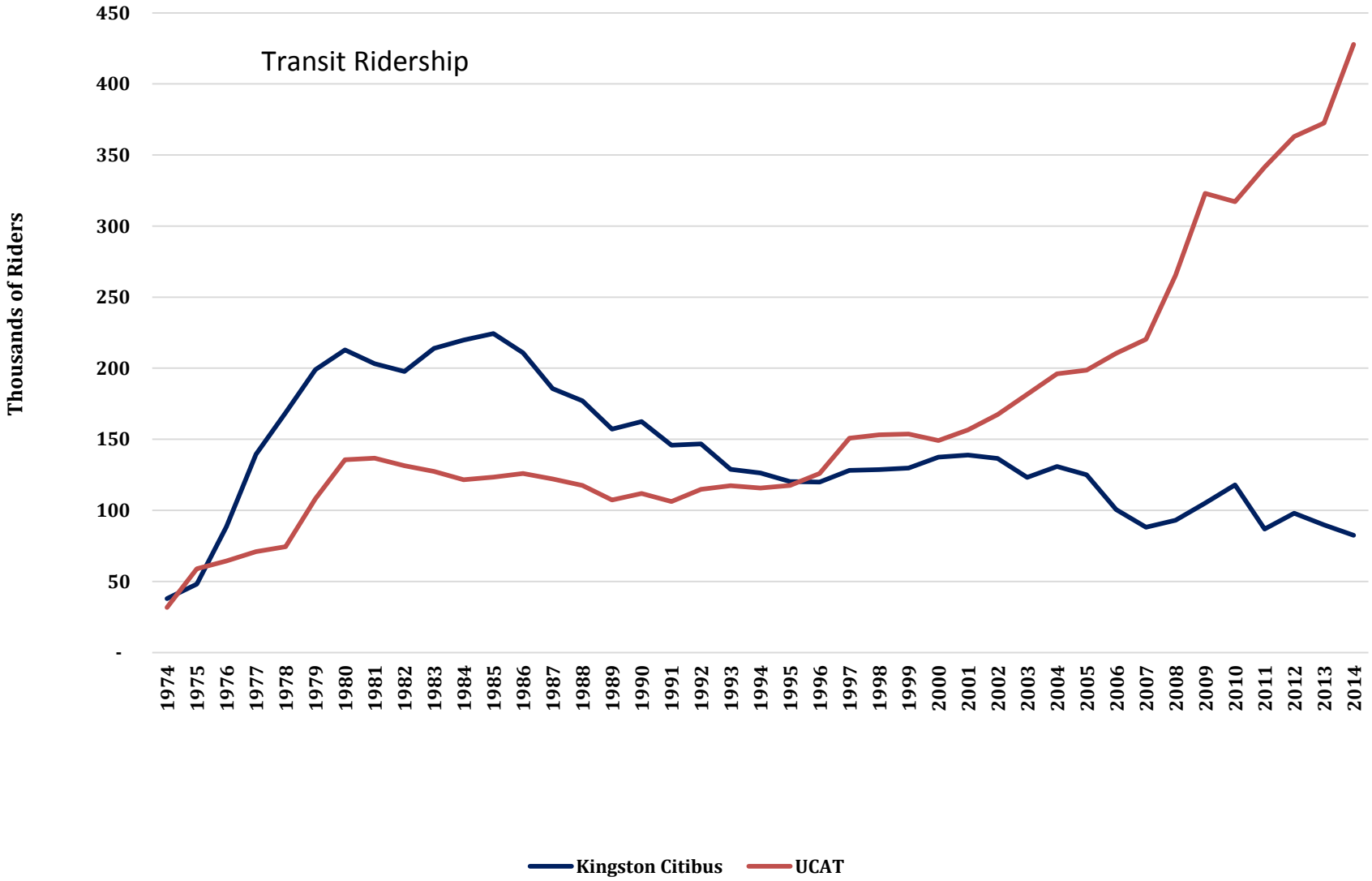
UCAT



Kingston Citibus



Public Transit

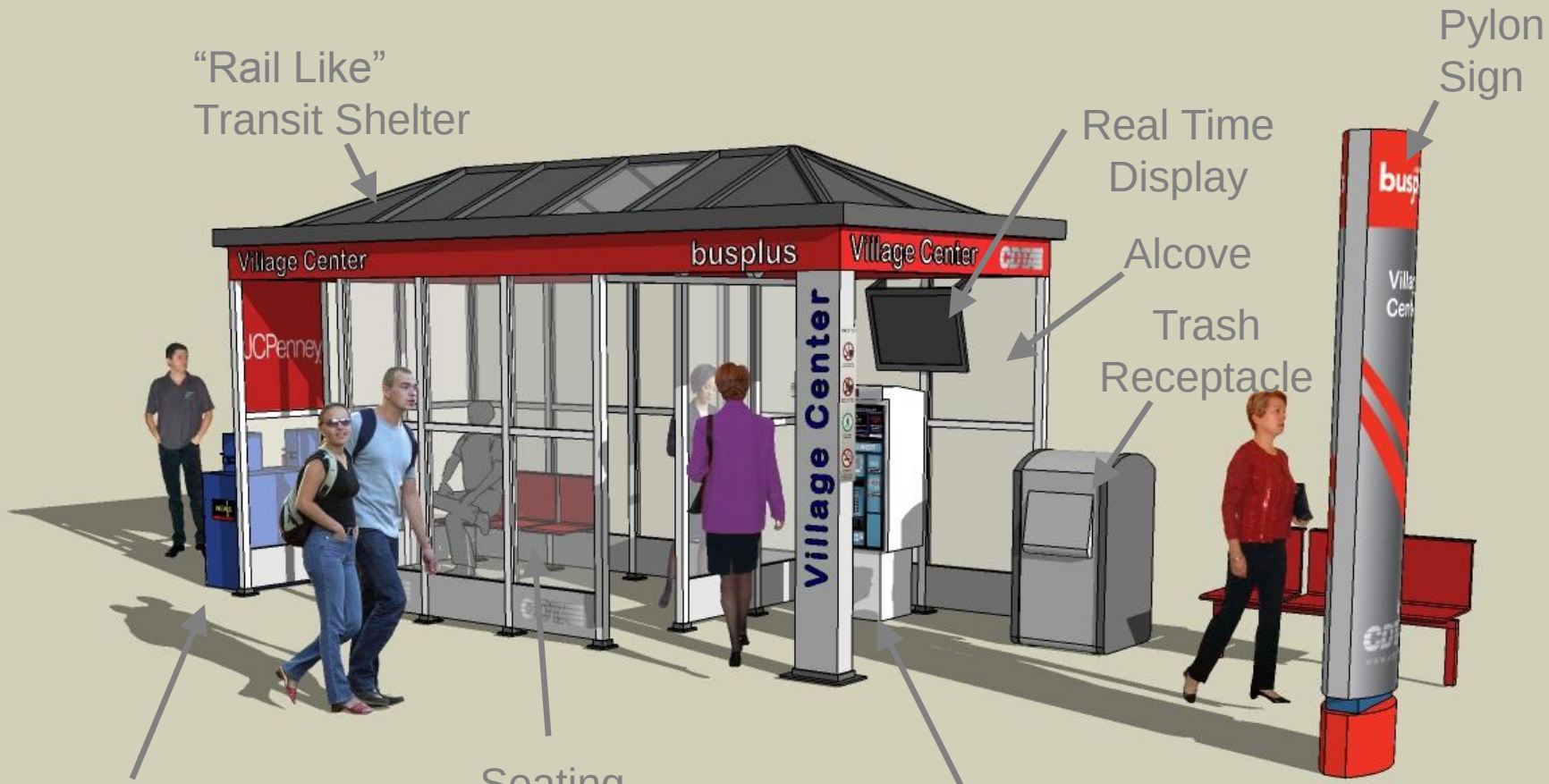


What is BRT ?

"BRT is flexible, rubber-tired rapid-transit that combines stations, vehicles, services, running ways, and Intelligent Transportation System (ITS) elements into an integrated system with a strong positive identity that evokes a unique image."

~TCRP 90

“Typical BRT Station”



Other Amenities (not shown)
Additional Lighting
Security Cameras

LED Lighting


Sunmark


905
CDTA

Strong Communities

- Resilient
- Connectivity
- Transit friendly
- Bike friendly
- Pedestrian friendly
- Mixed land uses
- Density
- Complete Streets

Complete Streets

Complete Streets Overview

Complete Streets:
Streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, bicycle to work, ride the bus, etc.

Incomplete streets:
Those designed with only cars in mind. They limit transportation choices by making walking, bicycling, and taking public transportation inconvenient, unattractive, and, too often, dangerous.

Complete Streets Fundamentals

"There is no one design prescription for complete streets. Ingredients that may be found on a complete street include: sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible public transportation stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area will look quite different from a complete street in a highly urban area. But both are designed to balance safety and convenience for everyone using the road."

- National Complete Streets Coalition

National Complete Streets Coalition

What are they?

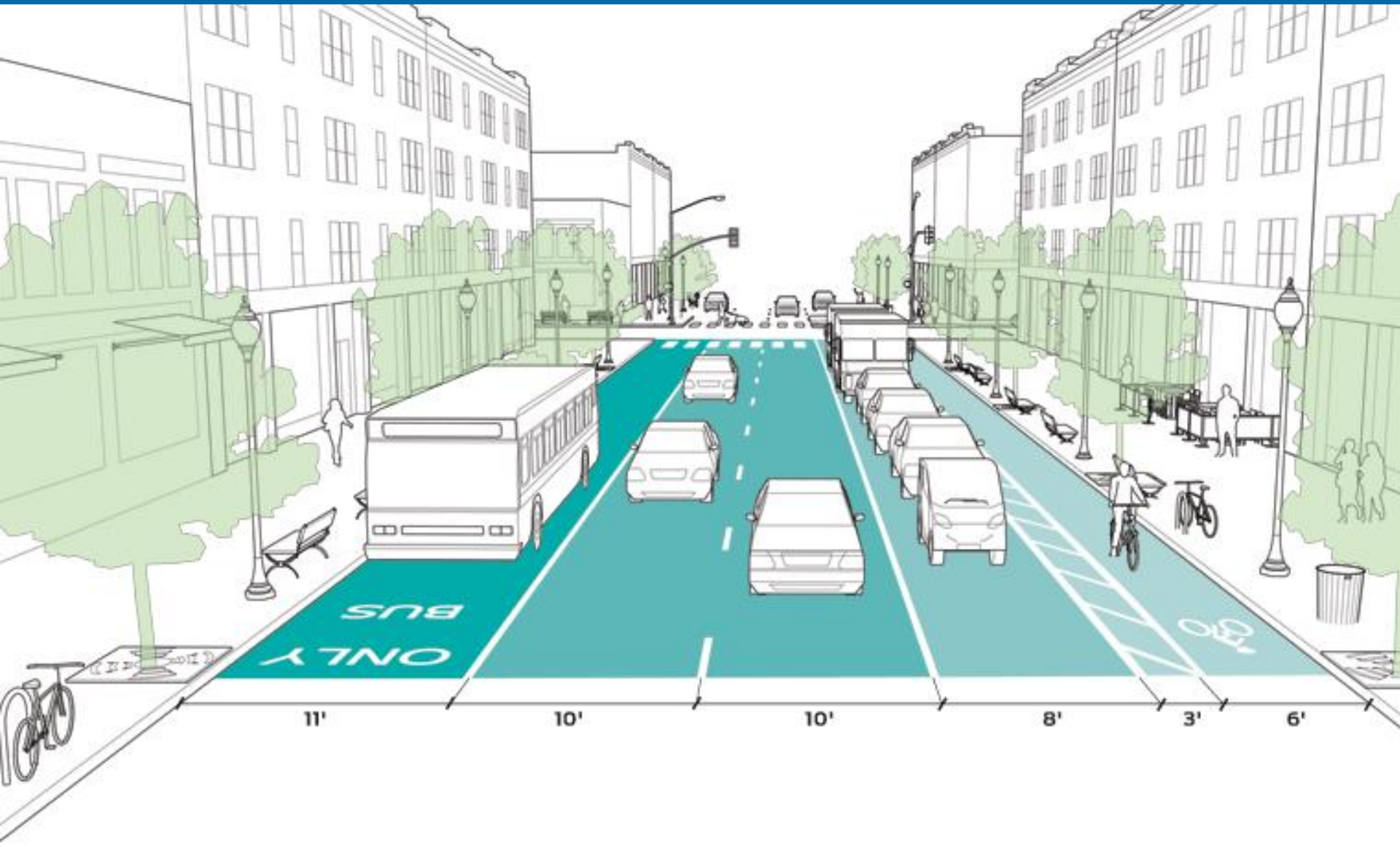
- Not just bike lanes and sidewalks!
- Network based
- Features will be context driven
  - What is the setting - Urban? Rural?
  - What is the land Use - Residential? Commercial?

What are they?

What are they?

Image:NACTO

What are they?



What are they?

What are they?

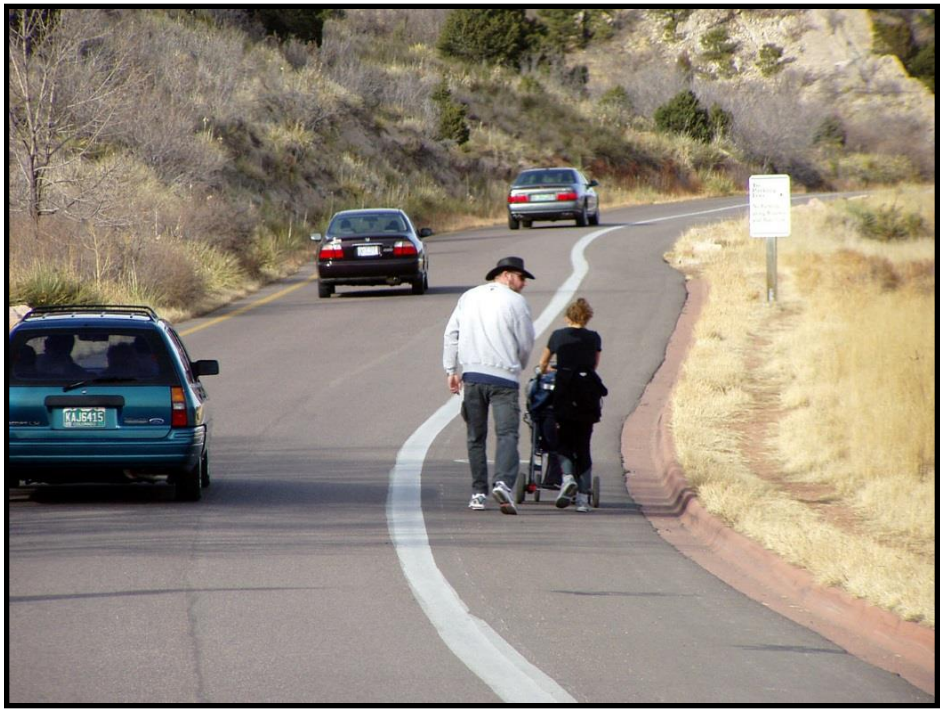
What are they?

Photos: CompleteStreetsnc.org

Main Streets and Downtowns

Image Source: NYSDOT & Seattle DOT

Rural Roadways



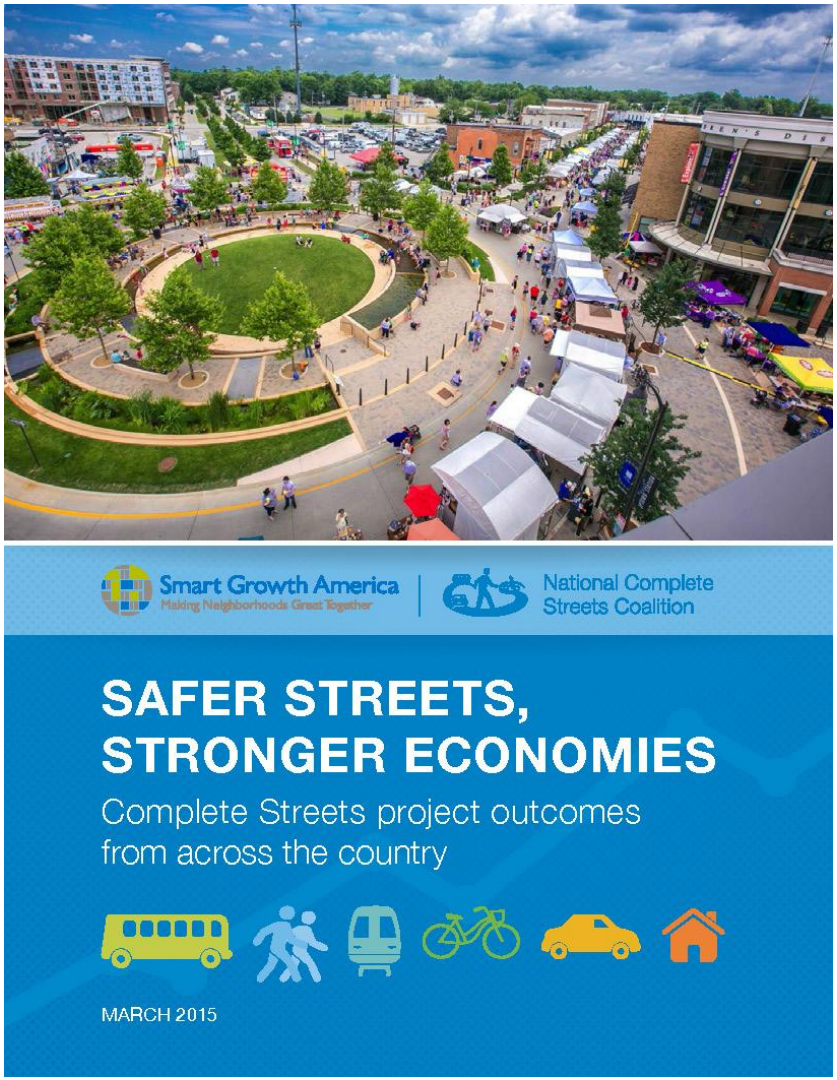
Photos: Dan Burden, Walkable and Livable Communities Institute

Why Complete Streets ?

- Aging population
- Gasoline prices
- Public health issues
- Safer streets = less costly streets
- Community interaction
- They power Main Street

Why Complete Streets ?

- Less money on transportation = more spending money
- Increased private investment in community
- Increased home values: 15 real estate markets; one-point increase in the walkability scores; $700 to $3,000 increase



Who are they for?

- Not just cyclists in spandex!
- They benefit everyone:
  - Older adults
  - People with disabilities or limited mobility
  - Children
  - People without cars
- Citizens are demanding them

New York State Law

- "…shall consider the safe travel on the road network by all users of all ages, including motorists, pedestrians, bicyclists, and public transportation users through the use of complete street design features in the planning, design, construction, reconstruction, restriping and rehabilitation, but not including resurfacing, maintenance, or pavement recycling of such facilities."
- Exemptions:
  - Roads where pedestrians or bikes are prohibited by law (e.g. interstate highways)
  - Cost is disproportionate to need, based on land use context, traffic volumes, population density, or other factors;
  - Demonstrated lack of need based on the above factors OR demonstrated lack of community support.

Local Policies

- Ulster County - Resolution
- Kingston - Advisory Council
- Saugerties - Policy and Advisory Council
- Wawarsing – Policy
- Shandaken – Policy
- Ellenville - Policy

COMPLETE STREETS ADVISORY COUNCIL KINGSTON

Complete Streets Policy Reviews

National Complete Streets Coalition

- Policies vary in level of detail and “teeth”
- Recognize the need to have a network
- Performance metrics – Does it track progress?
- How are exemptions accounted for? Who is accountable?

Planning & Zoning Role in Complete Streets

- Inclusion of principles and goals in Comprehensive Plans (transit, mobility network, design standards, etc.)
- Site plan reviews, codes and planning documents shape development and redevelopment:
  - Building locations/setbacks
  - Walkability and pedestrians
  - Bicycle facilities
  - Stormwater treatment
  - Site amenities
  - Access to transit
  - The “Feel”

Jurisdiction	Centerline Miles	Percentage
NYSDOT	293.33	13%
County	422.64	18%
Town	1,414.68	60%
City or Village	125.82	5%
Other State Agencies	9.3	0%
Other Local Agencies	27.8	1%
NYS Thruway	46.6	2%
Other Toll Authority	1.62	0%
Bureau of Fish and Wildlife	0.03	0%
Army	0.12	0%
Total	2,341.94	100%

Zoning Code Review

- **Connectivity**
  - Does it require an interconnected street pattern?
  - Does it require pedestrian connectivity between zones and neighborhoods?

Zoning Code Review

- **Circulation**
  - Does it prescribe street widths and streetscapes that encourage people to walk or bike?
  - Does it protect pedestrians and require pedestrian friendly environments?
  - Does it make sure open spaces and recreation areas are accessible to the public?

Zoning Code Review

- **Parking**
  - How does it treat parking lots and parking spaces?
  - Does it prescribe a particular relationship between parking, street and buildings?
  - Does it vary the parking requirements so that areas that are served by transit can reduce the amount of parking they have to provide?
  - Does it encourage shared lots? Parking maximums?

Zoning Code Review

- **Land subdivision and land use**
  - Does it allow for a mix of land uses so people can live, work and shop within the same or nearby neighborhoods?
  - Does it allow for areas where people can run businesses from their homes?

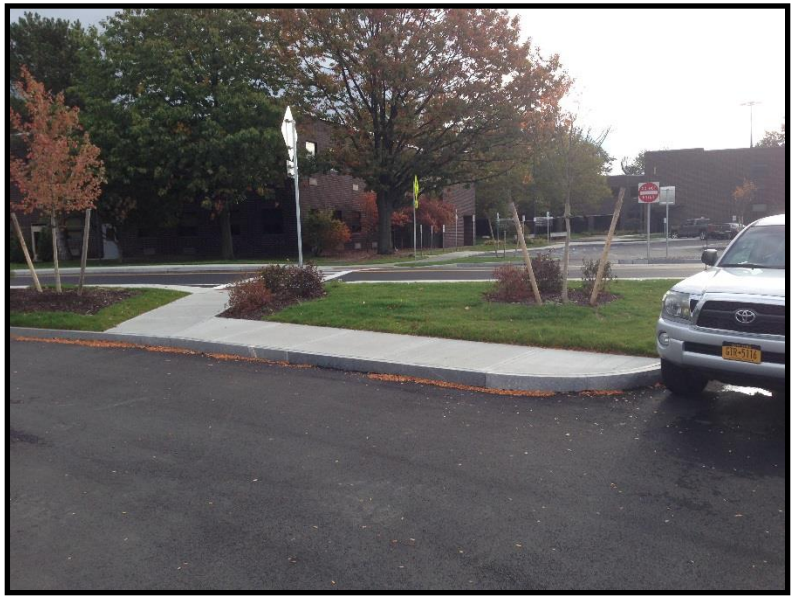
Zoning Code Review

- **Housing**
  - Does it require a mix of lot sizes to encourage a mix of housing options?
  - Does it allow or prevent accessory units or apartments, town homes and condominiums?
- **Special land use zones and special districts**
  - Does it provide protections for historic districts? Are there special design and architecture requirements for certain districts?

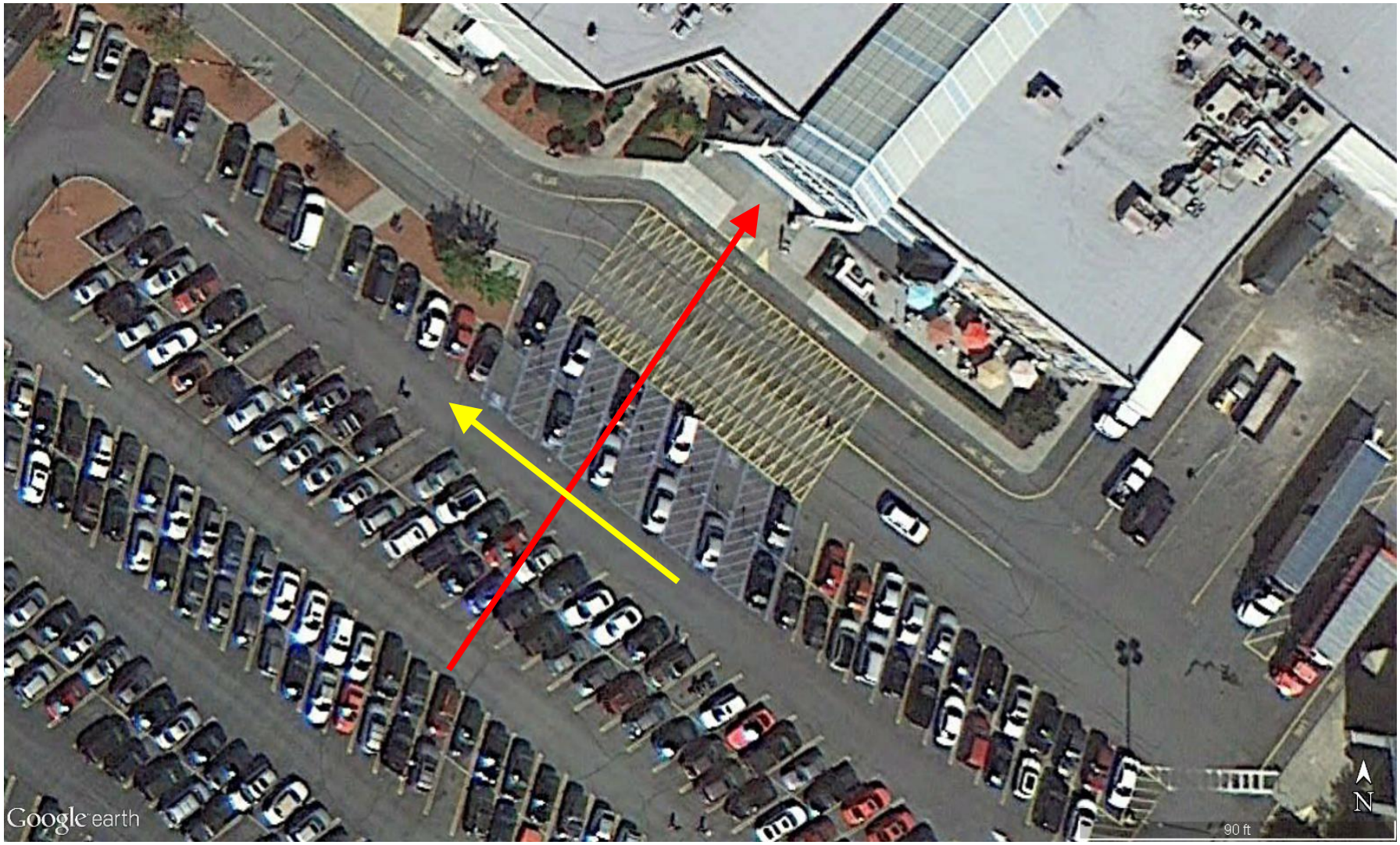
Site Plan Reviews

- Lane/intersection widths: balance the demands
  - More lanes/wider pavement = longer crosswalks, faster vehicles
- Access to transit; Transit facilities
- Access management (stay tuned)
- Sidewalks: Starts and ends;

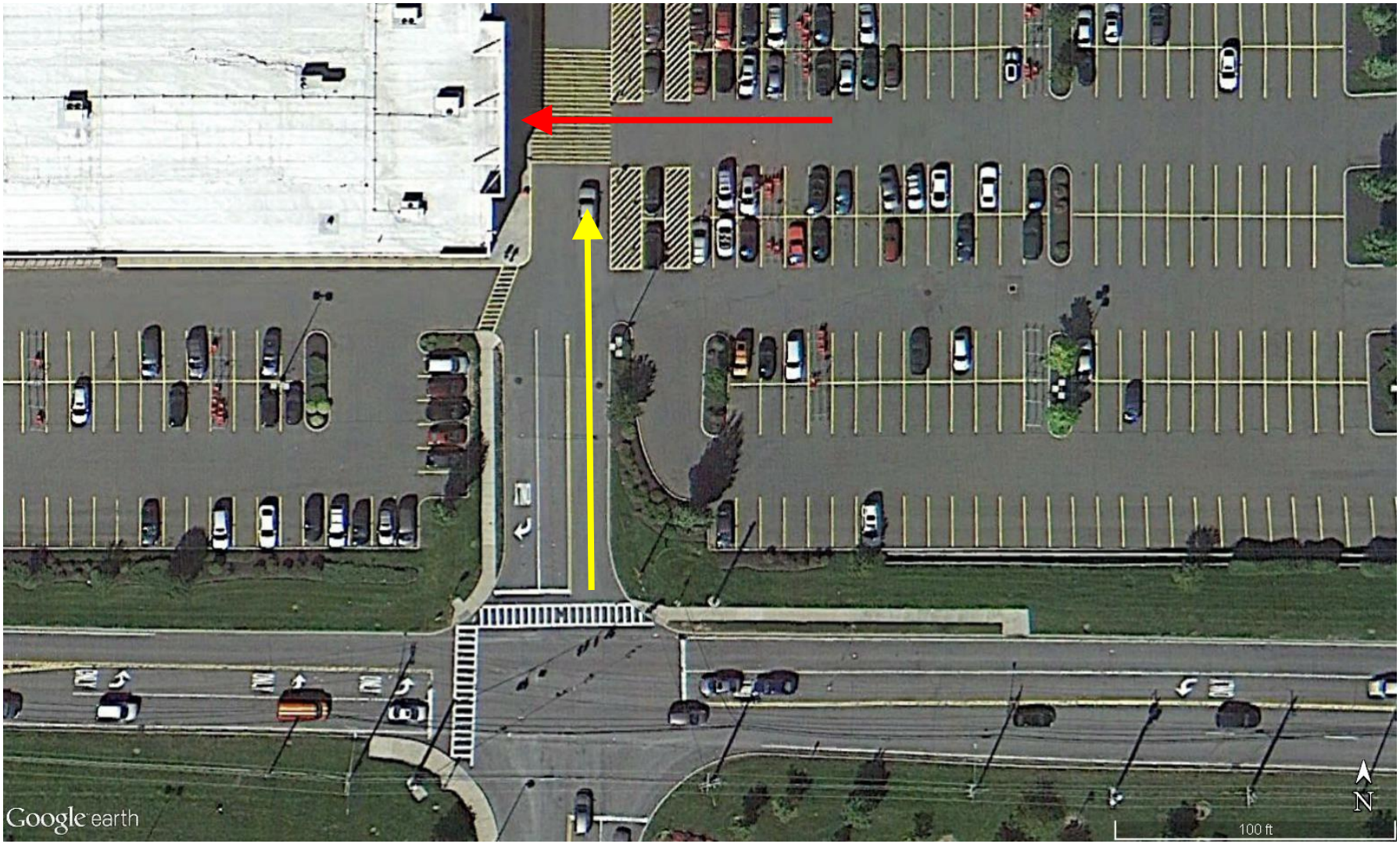
Site Plan Reviews



Site Plan Reviews

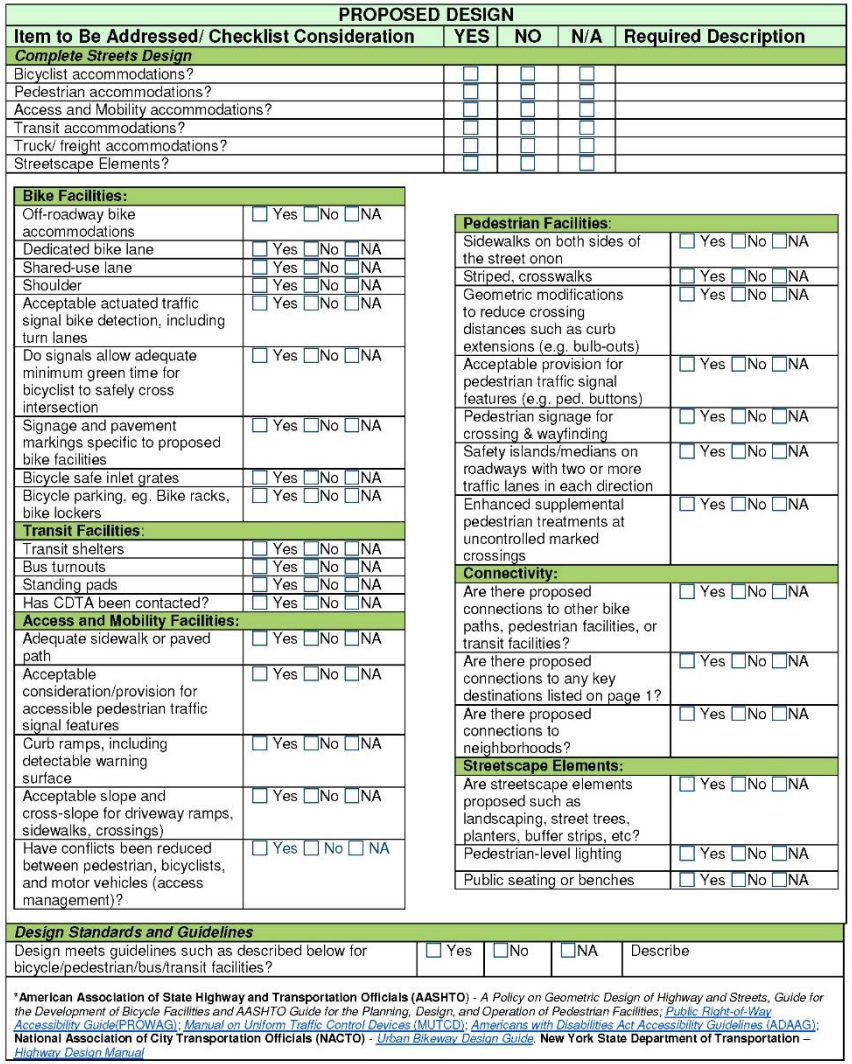


Site Plan Reviews



NYSDOT Complete Streets Checklist

- Structured for DOT's process and typical project types
- Local examples may be more helpful



PROPOSED DESIGN

Item to Be Addressed/ Checklist Consideration	YES	NO	N/A	Required Description
Complete Streets Design				
Bicyclist accommodations?	☐	☐	☐	
Pedestrian accommodations?	☐	☐	☐	
Access and Mobility accommodations?	☐	☐	☐	
Transit accommodations?	☐	☐	☐	
Truck/ freight accommodations?	☐	☐	☐	
Streetscape Elements?	☐	☐	☐	

Bike Facilities:	
Off-roadway bike accommodations	☐ Yes ☐No ☐NA
Dedicated bike lane	☐ Yes ☐No ☐NA
Shared-use lane	☐ Yes ☐No ☐NA
Shoulder	☐ Yes ☐No ☐NA
Acceptable actuated traffic signal bike detection, including turn lanes	☐ Yes ☐No ☐NA
Do signals allow adequate minimum green time for bicyclist to safely cross intersection	☐ Yes ☐No ☐NA
Signage and pavement markings specific to proposed bike facilities	☐ Yes ☐No ☐NA
Bicycle safe inlet grates	☐ Yes ☐No ☐NA
Bicycle parking, eg. Bike racks, bike lockers	☐ Yes ☐No ☐NA
Transit Facilities:	
Transit shelters	☐ Yes ☐No ☐NA
Bus turnouts	☐ Yes ☐No ☐NA
Standing pads	☐ Yes ☐No ☐NA
Has CDTA been contacted?	☐ Yes ☐No ☐NA
Access and Mobility Facilities:	
Adequate sidewalk or paved path	☐ Yes ☐No ☐NA
Acceptable consideration/provision for accessible pedestrian traffic signal features	☐ Yes ☐No ☐NA
Curb ramps, including detectable warning surface	☐ Yes ☐No ☐NA
Acceptable slope and cross-slope for driveway ramps, sidewalks, crossings)	☐ Yes ☐No ☐NA
Have conflicts been reduced between pedestrian, bicyclists, and motor vehicles (access management)?	☐ Yes ☐ No ☐ NA

Pedestrian Facilities:	
Sidewalks on both sides of the street onon	☐ Yes ☐No ☐NA
Striped, crosswalks	☐ Yes ☐No ☐NA
Geometric modifications to reduce crossing distances such as curb extensions (e.g. bulb-outs)	☐ Yes ☐No ☐NA
Acceptable provision for pedestrian traffic signal features (e.g. ped. buttons)	☐ Yes ☐No ☐NA
Pedestrian signage for crossing & wayfinding	☐ Yes ☐No ☐NA
Safety islands/medians on roadways with two or more traffic lanes in each direction	☐ Yes ☐No ☐NA
Enhanced supplemental pedestrian treatments at uncontrolled marked crossings	☐ Yes ☐No ☐NA
Connectivity:	
Are there proposed connections to other bike paths, pedestrian facilities, or transit facilities?	☐ Yes ☐No ☐NA
Are there proposed connections to any key destinations listed on page 1?	☐ Yes ☐No ☐NA
Are there proposed connections to neighborhoods?	☐ Yes ☐No ☐NA
Streetscape Elements:	
Are streetscape elements proposed such as landscaping, street trees, planters, buffer strips, etc?	☐ Yes ☐No ☐NA
Pedestrian-level lighting	☐ Yes ☐No ☐NA
Public seating or benches	☐ Yes ☐No ☐NA

Design Standards and Guidelines				
Design meets guidelines such as described below for bicycle/pedestrian/bus/transit facilities?	☐ Yes	☐No	☐NA	Describe

*American Association of State Highway and Transportation Officials (AASHTO) - *A Policy on Geometric Design of Highway and Streets, Guide for the Development of Bicycle Facilities and AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities; Public Right-of-Way Accessibility Guide(PROWAG); Manual on Uniform Traffic Control Devices (MUTCD); Americans with Disabilities Act Accessibility Guidelines (ADAAG);* **National Association of City Transportation Officials (NACTO)** - *Urban Bikeway Design Guide.* **New York State Department of Transportation** – *Highway Design Manual*

City of Saratoga Springs Complete Streets Checklist 2

NYSDOT Smart Growth Review

- Principles:
  - ✓Locate near existing development and infrastructure.
  - ✓Increase the range of housing opportunities.
  - ✓Protect open space and critical resources.
  - ✓Create a vibrant mix of uses.
  - ✓Create or enhance choices for getting around.
  - ✓Design for personal interaction and walkability.
  - ✓Respect the desired character of the community.
  - ✓Be sustainable in the context of the community.

NYSDOT Smart Growth

Smart Growth Checklist
For Municipal Land Use Planning and Management

Section II: Infrastructure. The municipality can reduce public costs stemming from the provision of water, sewer, transportation and other public infrastructure by limiting their extension outside of existing or planned centers.

	If Yes ☑
Does the municipality have a comprehensive infrastructure plan?	☐
Do the municipality's infrastructure investment policies limit expansion of infrastructure to encourage development density?	☐
Do the municipality's zoning requirements and investment actions promote industrial, commercial or retail development in areas already served by infrastructure such as downtowns, empire zones, industrial parks and urban redevelopment zones?	☐

Section III: Open Space, Farmland, Critical Environments. The municipality can protect its environment by acting to preserve critical resources and environmental amenities, such as drinking water, open space and outdoor recreation areas.

	If Yes ☑
Does the municipality have a plan to preserve or to protect critical environmental areas, such as aquifers, unbroken forest and habitat of threatened or endangered species?	☐
Does the municipality have a farmland protection program?	☐
Does the municipality have a scenic or viewshed preservation program?	☐
Does the municipality have policies for or a program to clean up and/or to reuse properties with identified environmental problems?	☐
Does the community have an outdoor recreation plan?	☐

Smart Growth Checklist
For Proposed Development Projects in Your Community

Principle II: The proposed project provides a range of housing options. Smart Growth ensures the availability of housing for all needs and incomes. This contributes to the economic sustainability and social diversity of a community.

	If Yes ☑
Does it offer a mix of housing types and sizes for a range of ages and likely situations? (apartments, condos, single-family homes, studios, 1/2/3/ bedrooms)	☐
Does it have a range of housing prices and options (purchase/rent)?	☐
Does it provide affordable housing?	☐

Principle III: The proposed project protects open space, farmland and critical environmental areas. Smart Growth preserves critical resources, such as groundwater recharge areas, and environmental amenities, such as open space, farmland and recreation areas. This enhances property values, health and the community's long-term sustainability.

	If Yes ☑
Does it avoid critical environmental areas, such as aquifers, unbroken forest and habitat of threatened or endangered species?	☐
Does it avoid the acquisition and change in use of operating farms or prime farmland?	☐
Does it involve the cleanup and reuse of properties with identified environmental problems, such as brownfields?	☐
Does it avoid sensitive environmental viewsheds or preserve views of scenic, historic or cultural areas?	☐

Principle IV: The proposed project provides a mix of land uses. Smart Growth mixes land uses which contributes to the creation of a vibrant community by integrating diverse activities and expanding the offerings currently available.

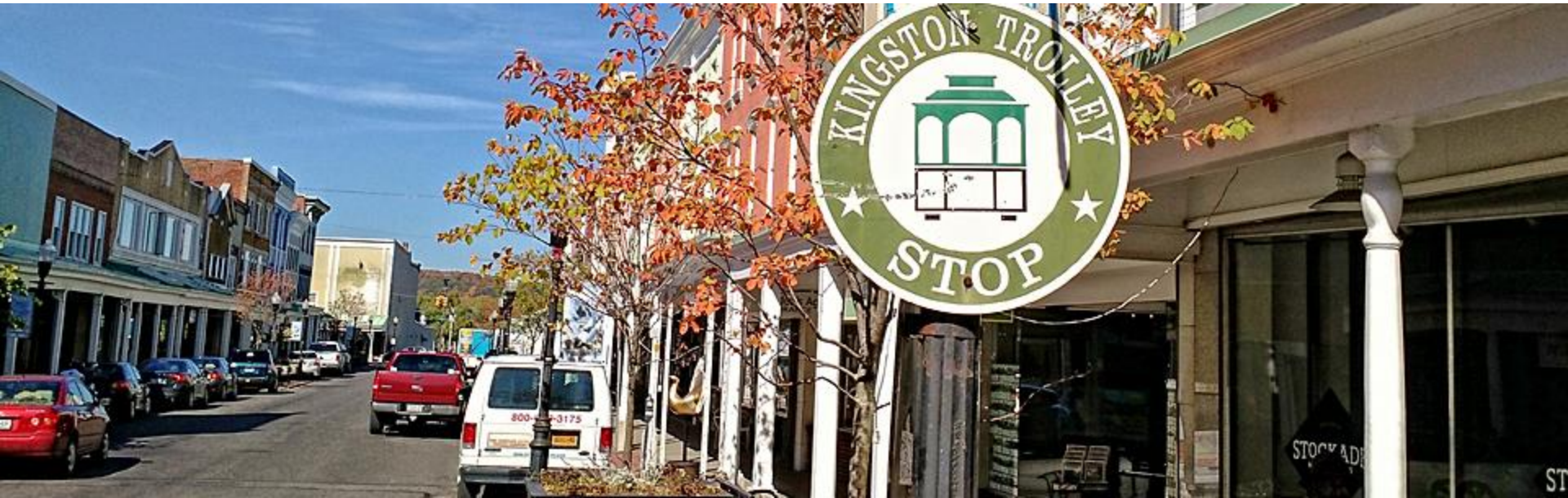
	If Yes ☑
Is it a mixed-use project, including any combination of at least three of the following: homes, retail, commercial, recreational, educational, or public facilities?	☐
Does it add a new and compatible type of land use to an existing neighborhood or district?	☐
Does it add new and compatible products or services to an established business district?	☐

Complete Streets Resources

- Ulster County:
  - Non-Motorized Transportation Plan
    - » Policy Guidelines, project recommendations, funding opportunities, etc.
  - Bicycle & Pedestrian Primer Handbook for Local Communities
  - Main Street Toolbox
- Smart Growth America
  - Code and Zoning Audit
  - Annual Rankings/reviews of National CS Policies
- NACTO Urban Street and Bicycle Design Guides
- ITE Walkable Communities
- AASHTO Bicycle Guides

Complete Streets Actions

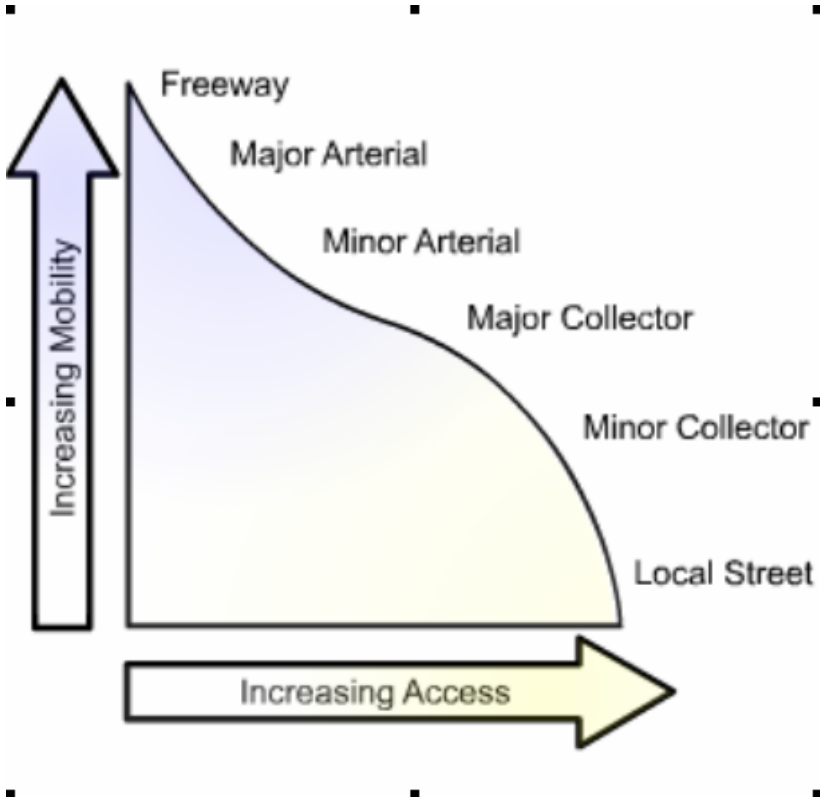
- Need a local champion(s) to succeed
- Be progressive – don’t settle for status quo
- Help educate your community
- Demand better for your community



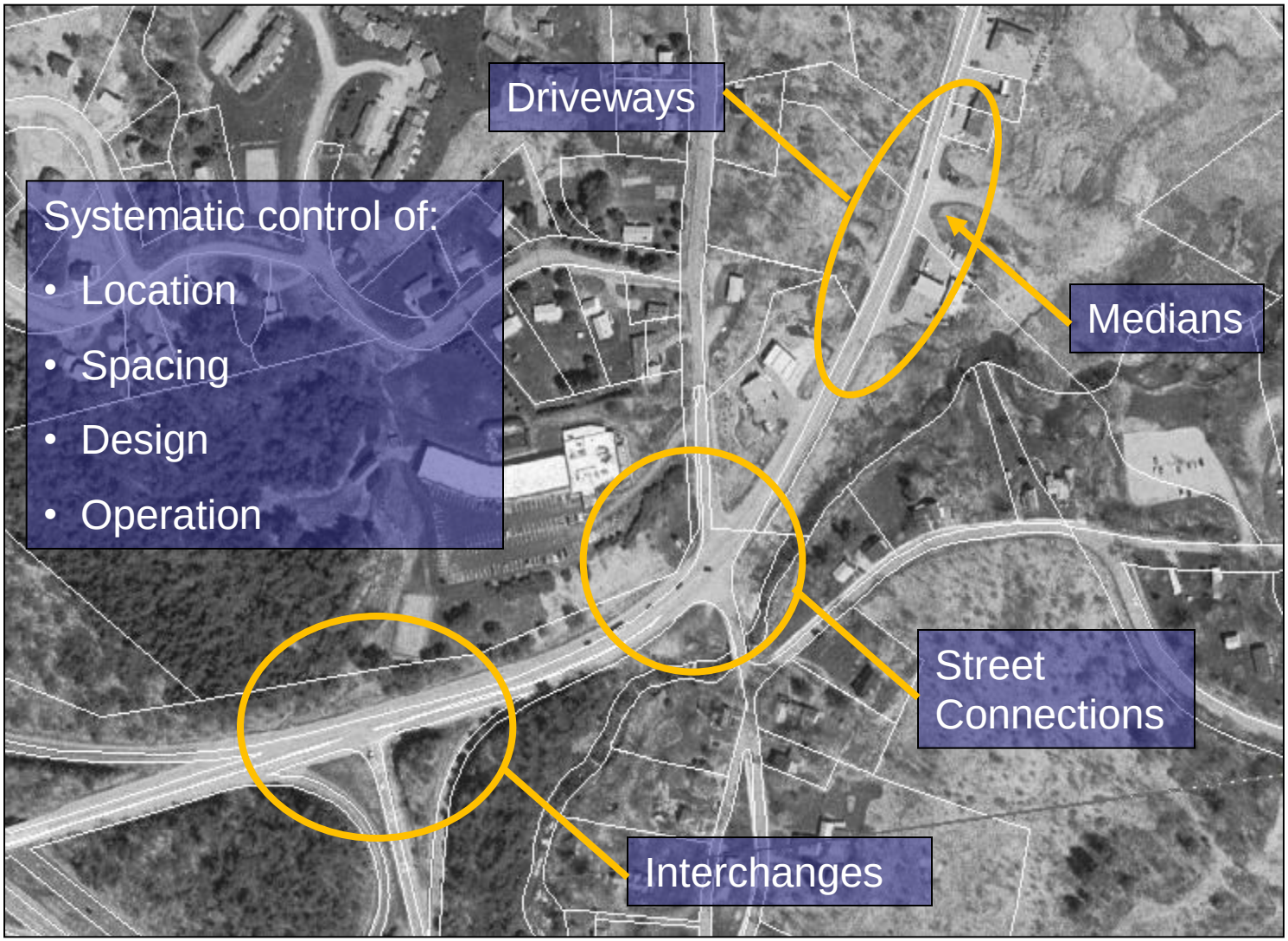
Access Management

Goals of Access Management

- Improve safety for all users
- Balance access and mobility
- Preserve roadway capacity and ability to accommodate economic development
- Create more attractive roadways
- Support smart growth land development
  - Interconnected streets
  - Access for bikes / peds
  - Access to transit

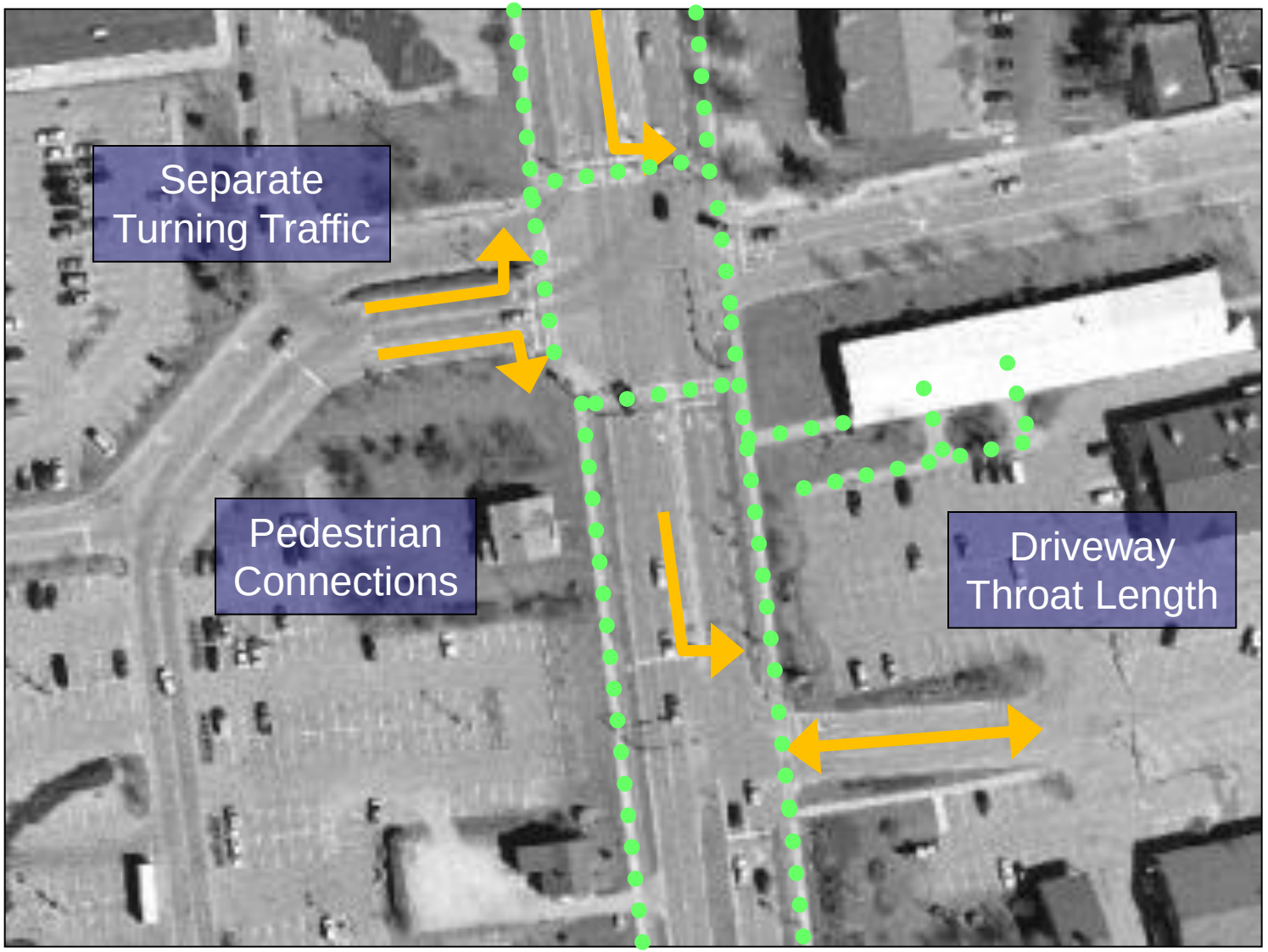


What is Access Management?



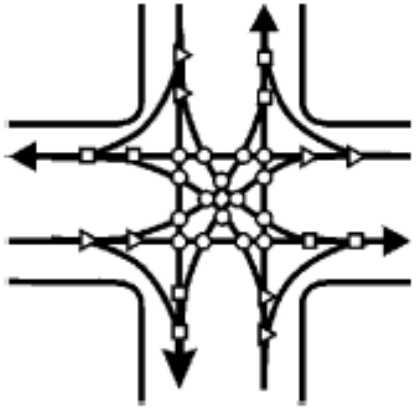
The Elements of Access Management

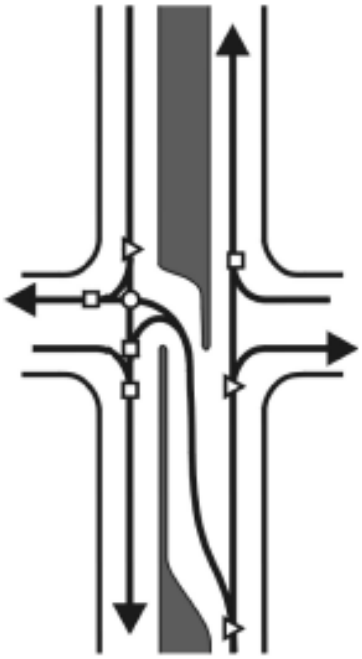
The Elements of Access Management



10 National Access Management Principles

1. Provide a specialized roadway system.
2. Limit direct access to major roadways.
3. Promote intersection hierarchy.
4. Locate signals to favor through movements.
5. Preserve the functional area of intersections and interchanges.
6. Limit the number of conflict points.
7. Separate conflict areas.
8. Remove turning vehicles from through traffic lanes.
9. Use non-traversable medians to manage left turn movements.
10. Provide a supporting street and circulatory system.

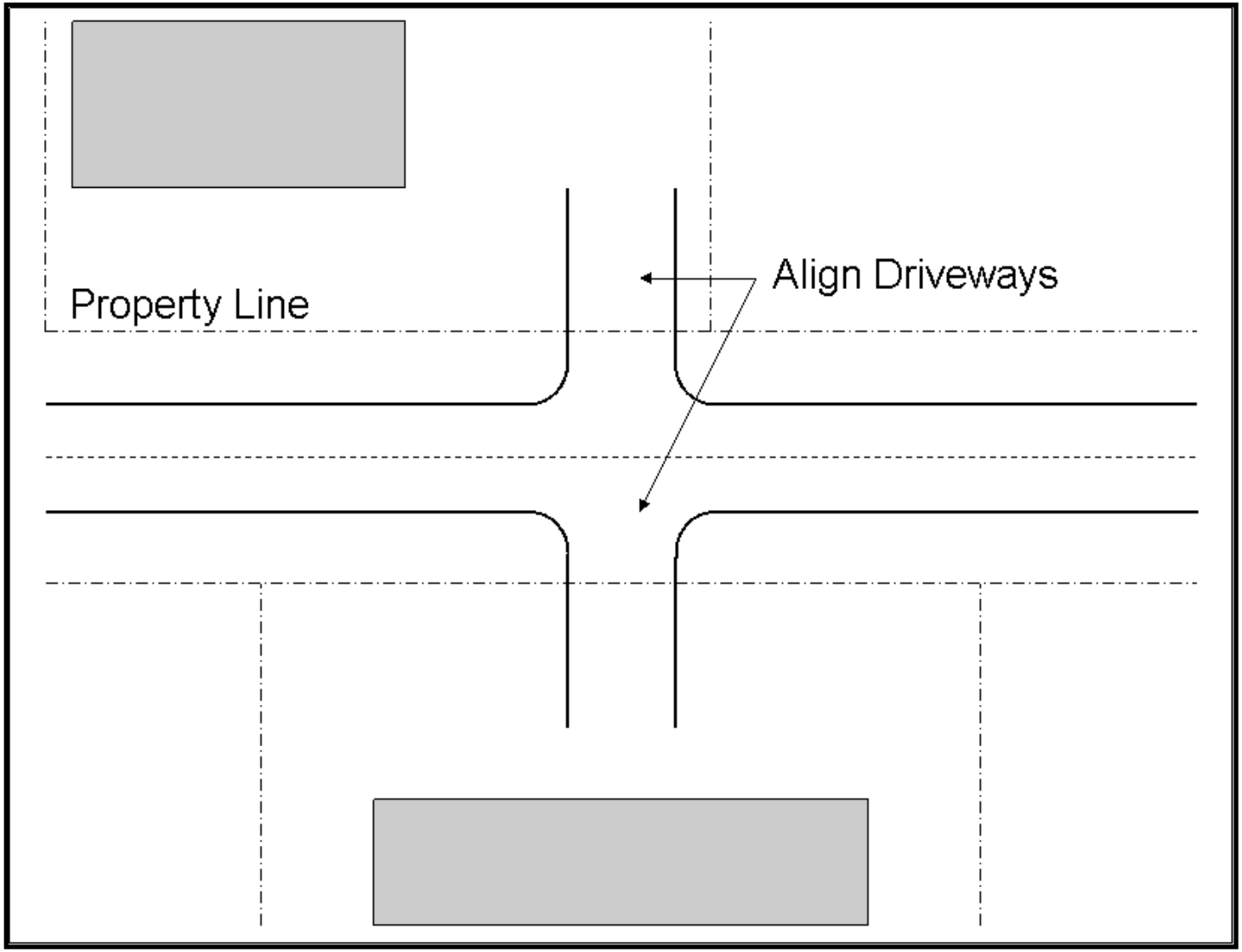




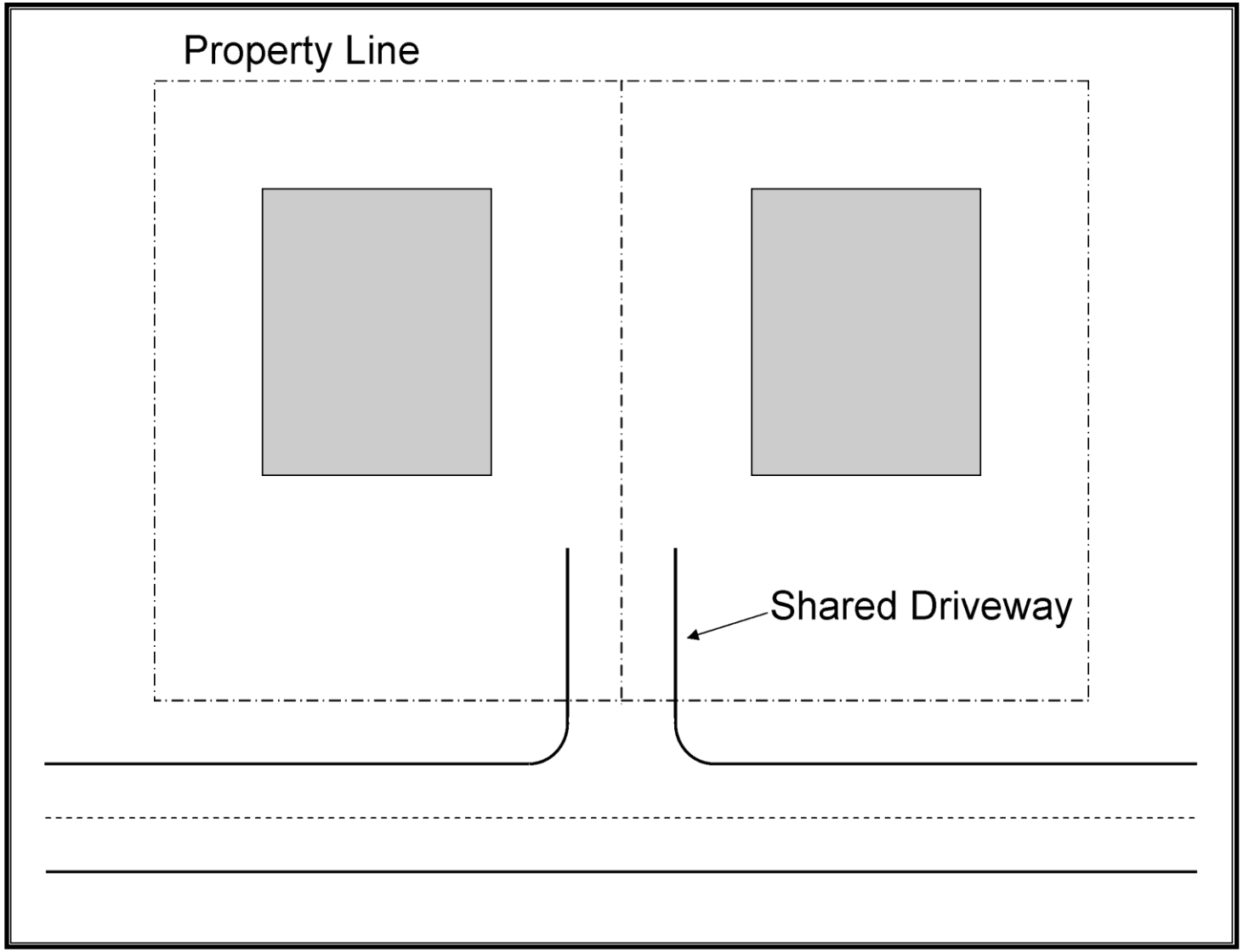
One of FHWA's 9 Proven Safety Countermeasures

- Access Management
- Roundabouts
- Backplates
- Rumble Strips
- Delineation
- Pedestrian refuge
- Pedestrian Hybrid Beacon
- Safety Edge
- Road Diet

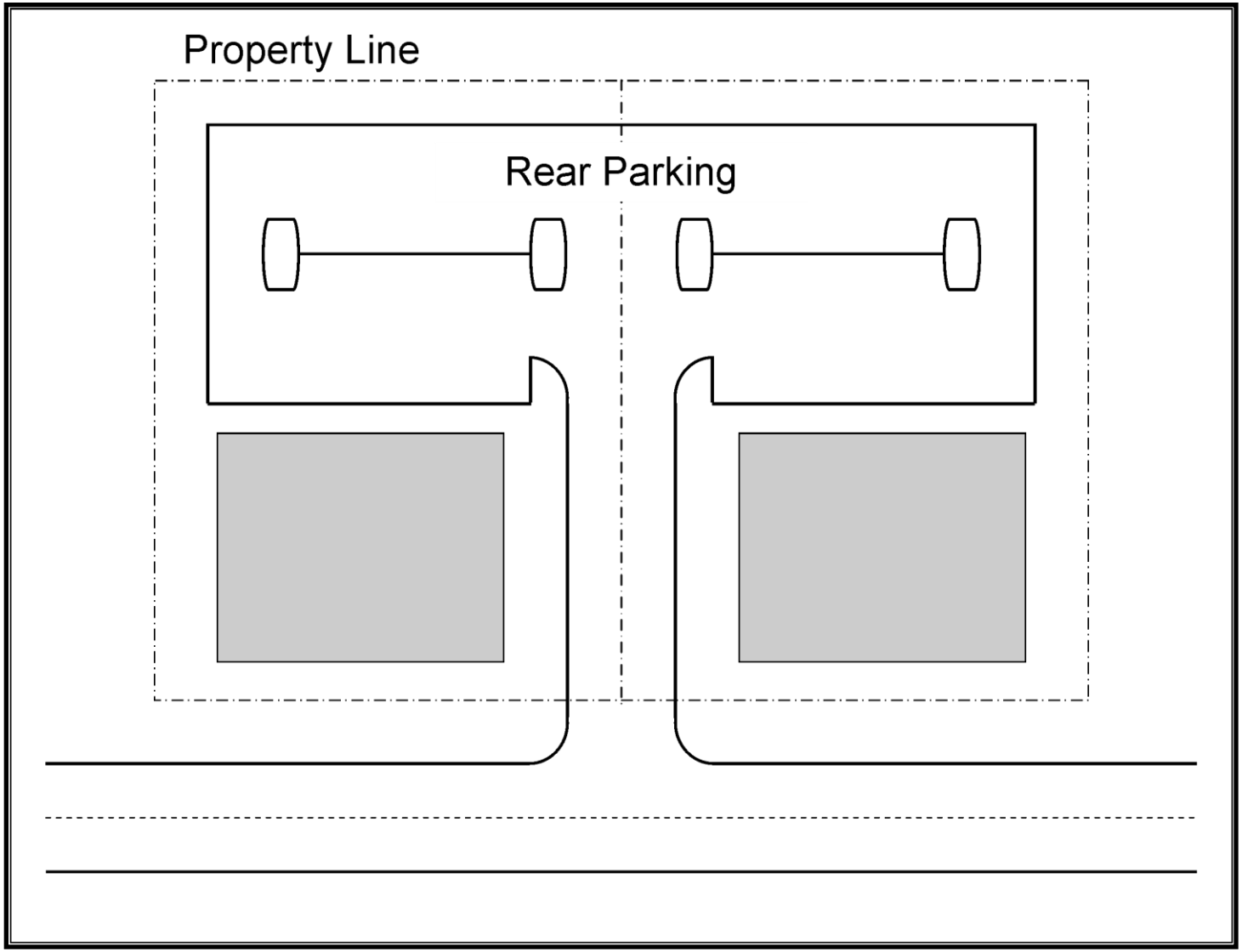
Align Driveways



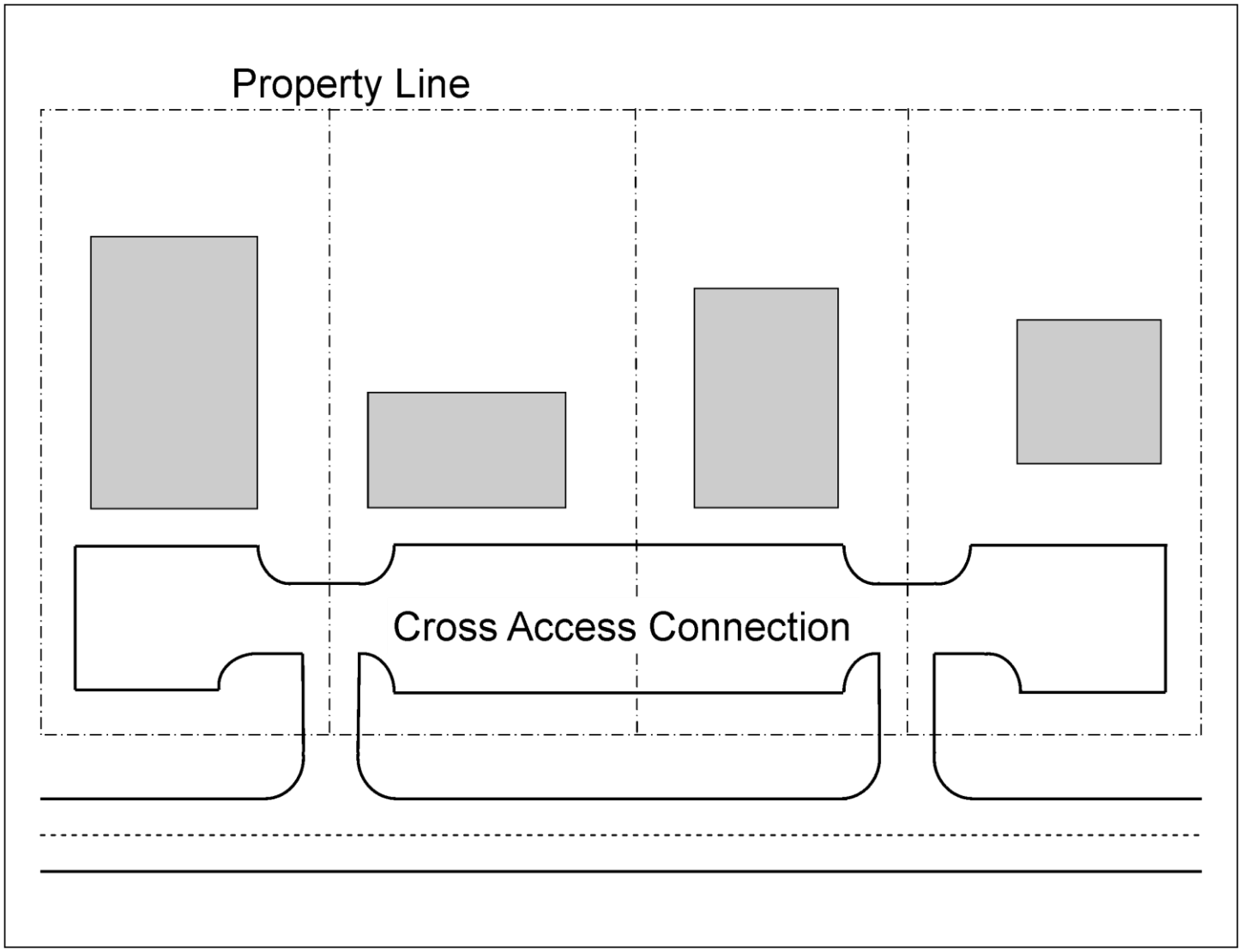
Shared Driveways



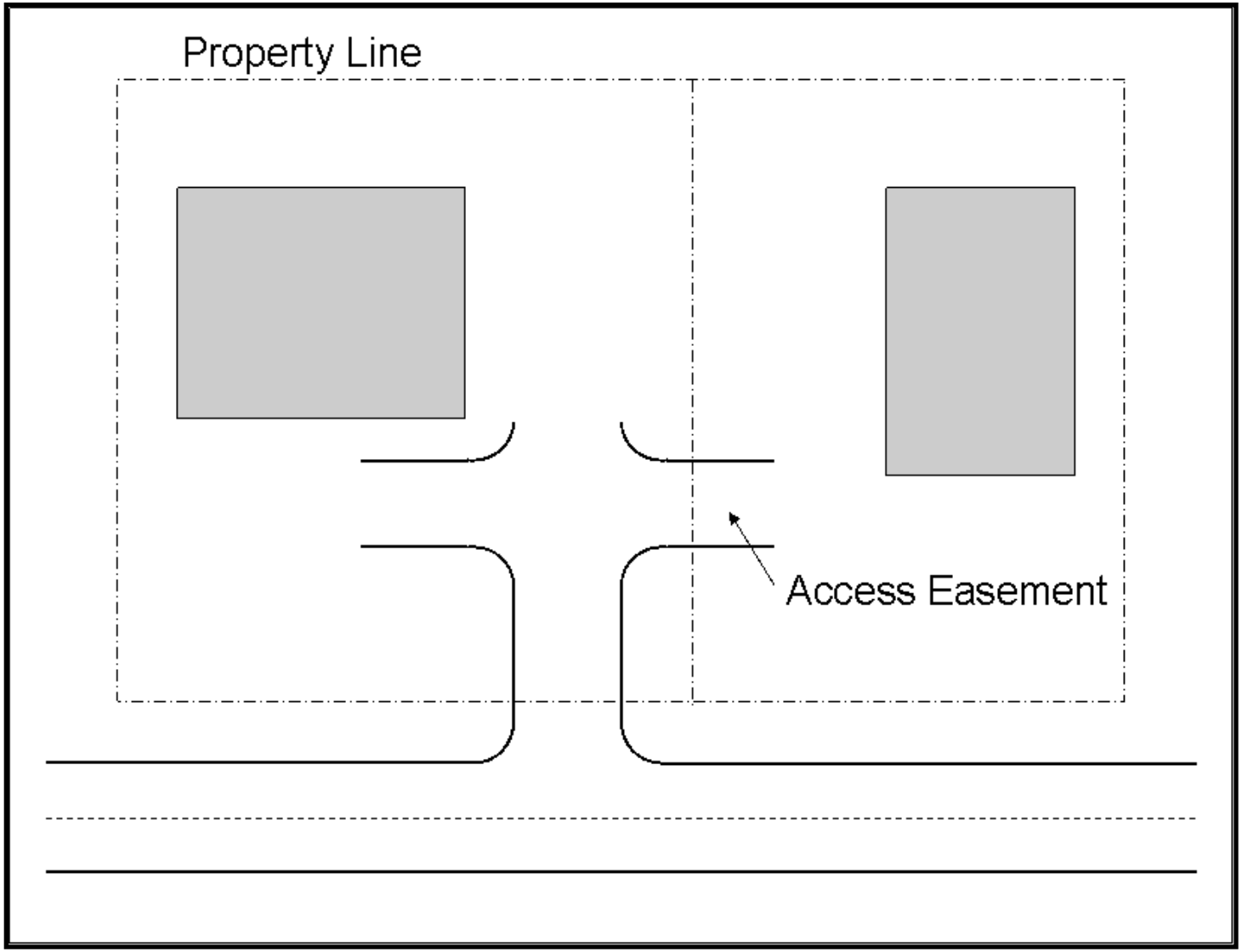
Rear Parking



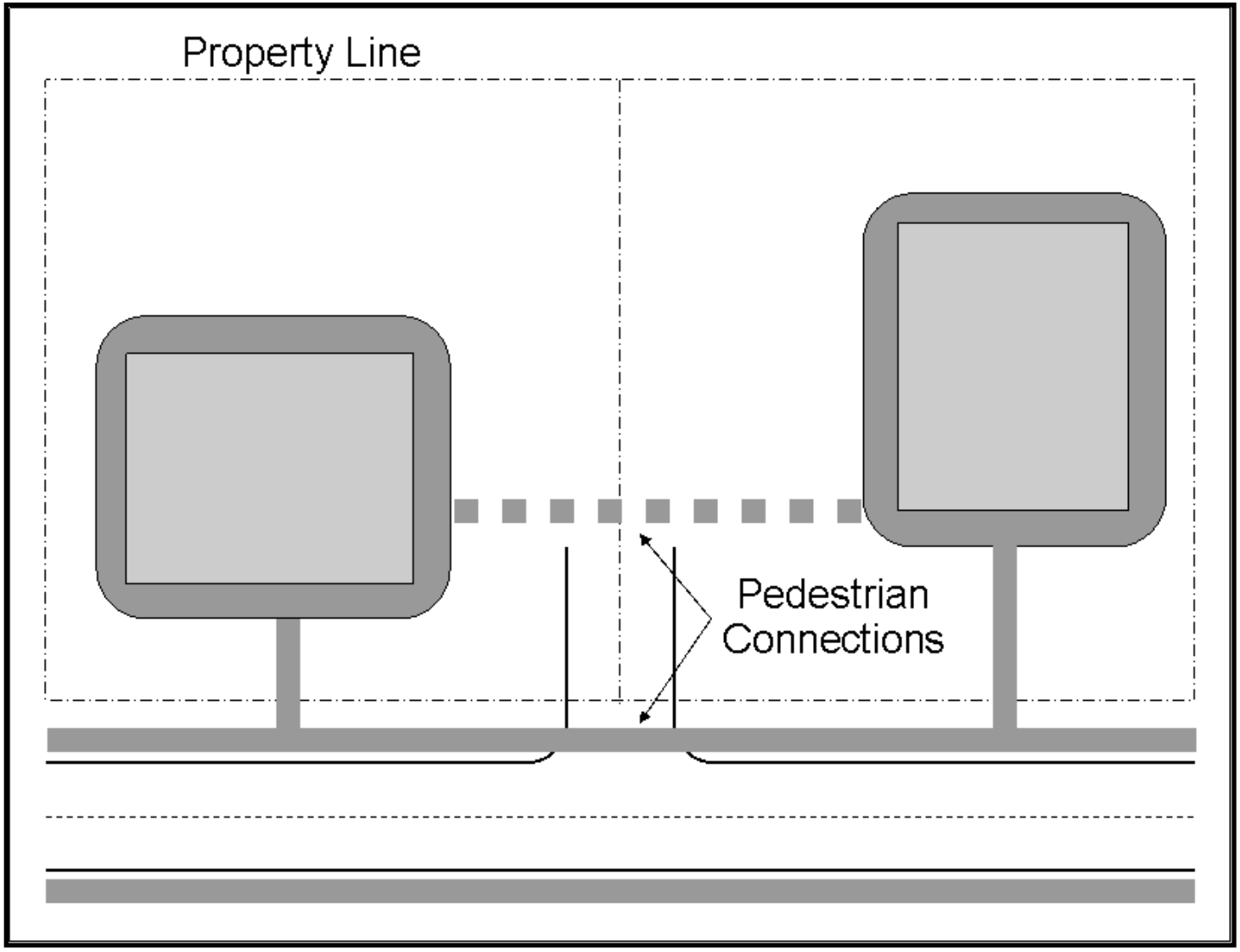
Cross Access Connections



Access Easements

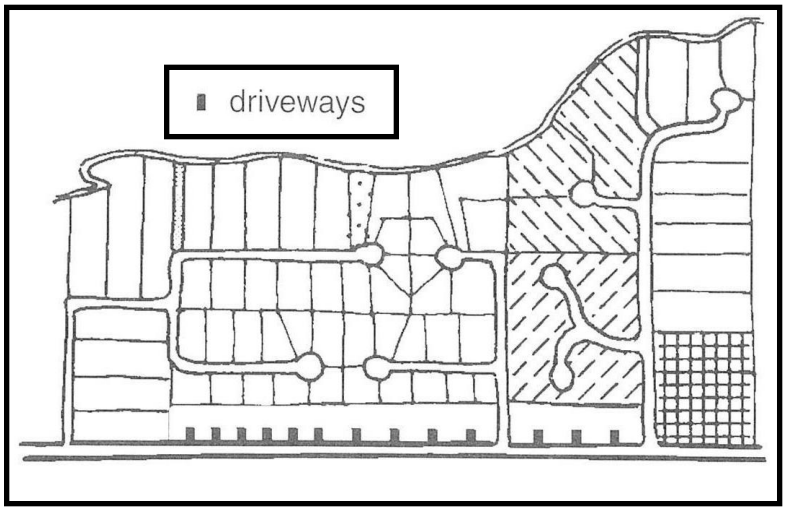


Pedestrian Connections

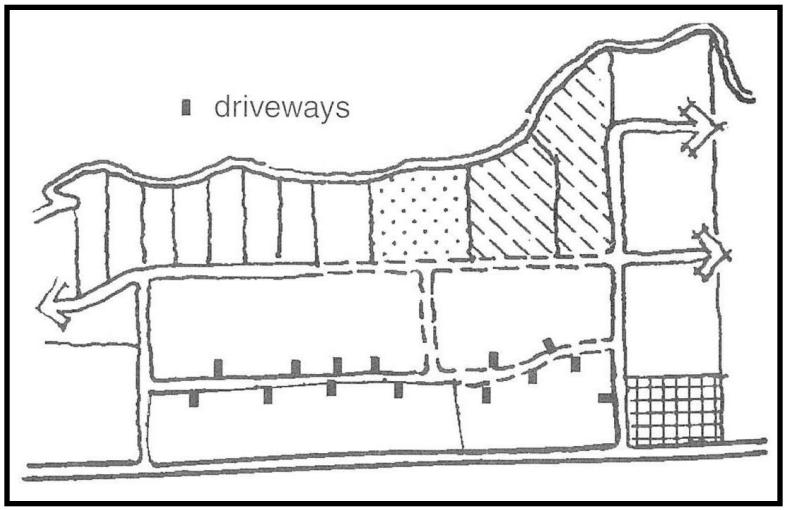


Interconnected Roadways

Poor Connectivity

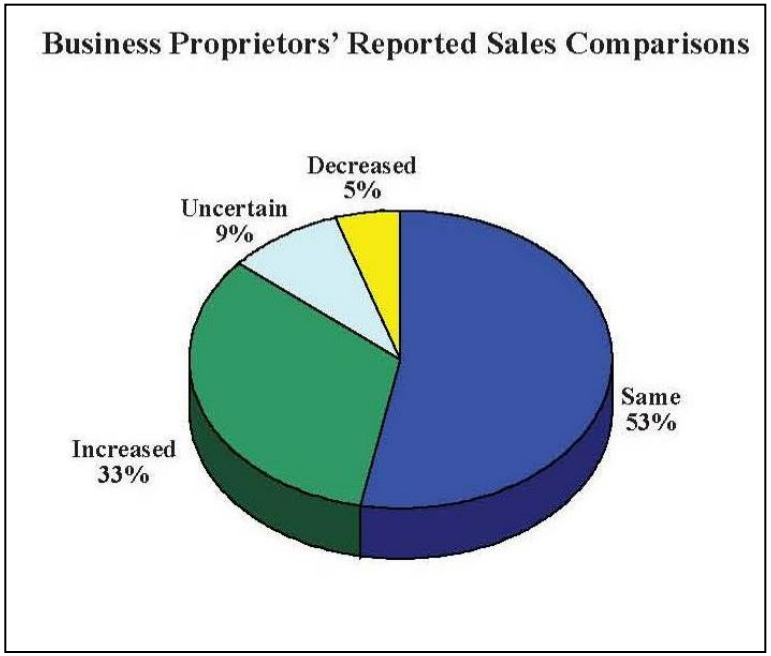


Good Connectivity



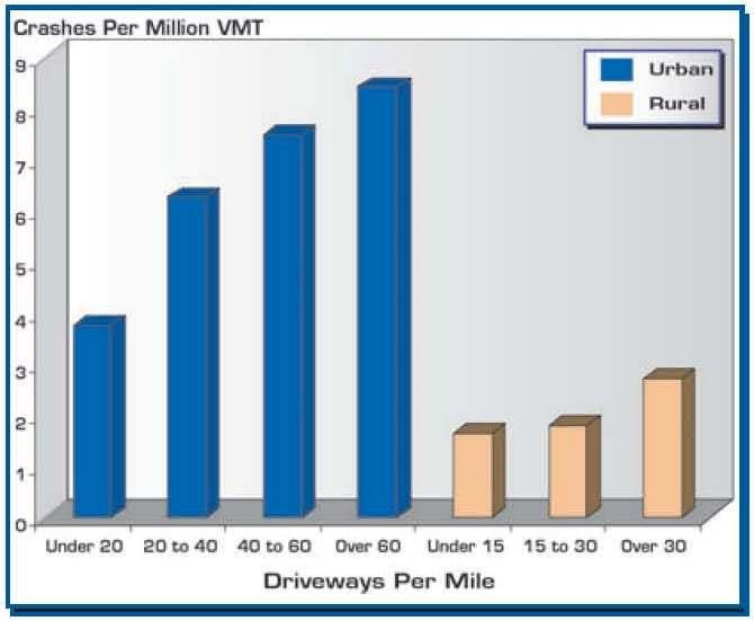
Benefits for Businesses

- Increased market area due to decreased congestion and reduced travel times
- Same or better sales typically
- Safer and easier for customers to enter and exit the business
- Properly designed entrances shared by multiple businesses allow:
  - more site area for parking and the opportunity for shared parking
  - improved landscaping or other site amenities

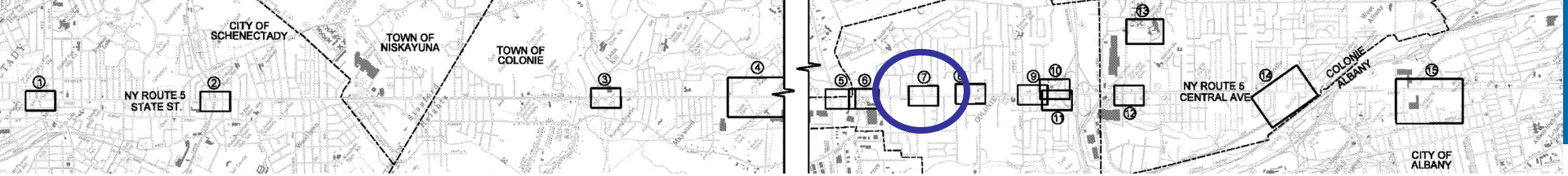


Overall Benefits of Access Management

- Reduce congestion
- Improve safety
- Shorten travel times
- Positive economic benefits
- Increase connectivity for local residents
- More attractive roadways
- Preserve road capacity
- Safer for pedestrians and bicyclists
- Improve access to transit



Source: “Benefits of Access Management”; USDOT, FHWA


CITY OF SCHENECTADY
TOWN OF NISKAYUNA
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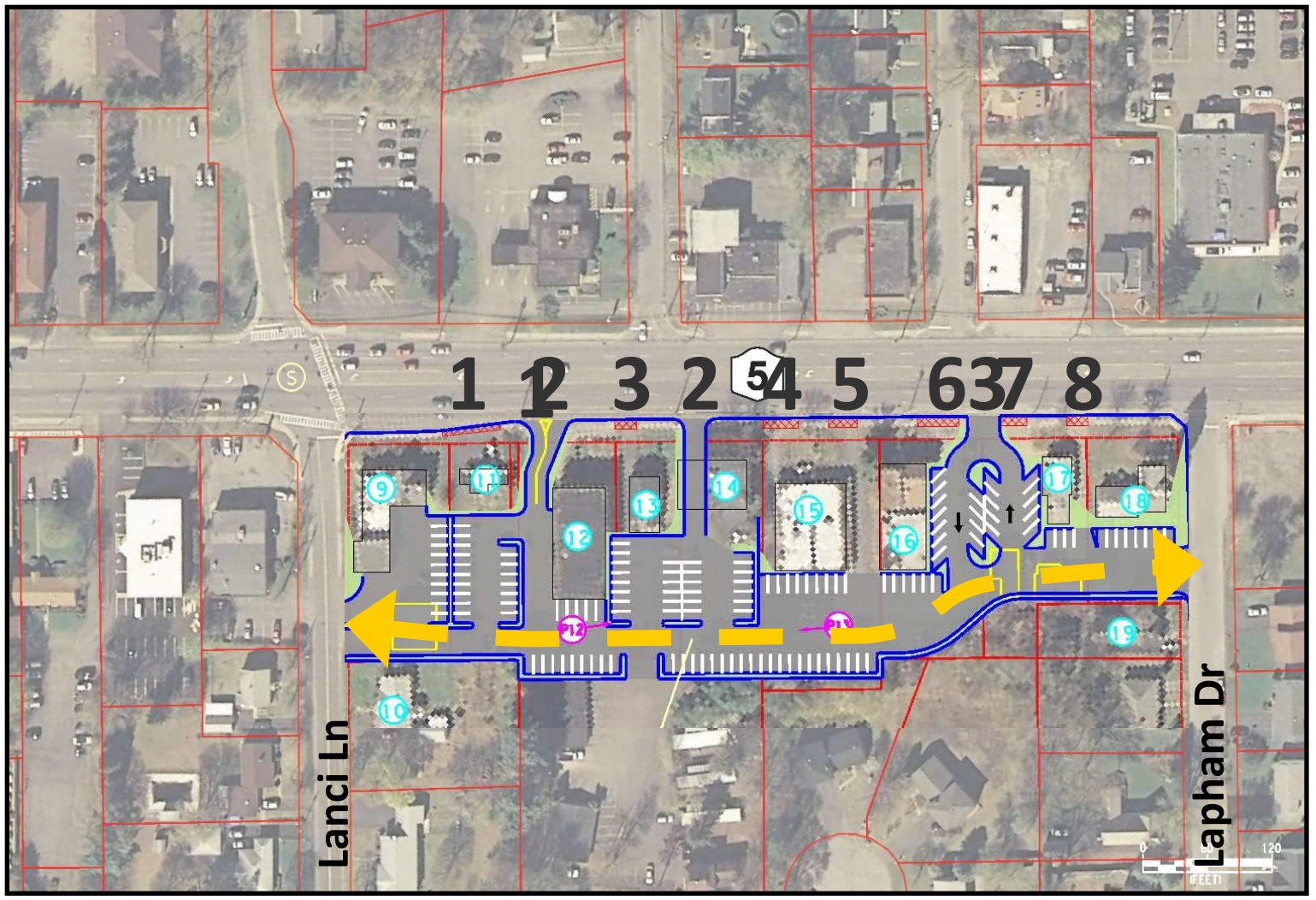
ALBANY
CITY OF ALBANY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FEET

1. *Existing auto-centric suburban corridor.*

2. *Sidewalks and street trees added.*

3. *Existing uses adapted to be more TND friendly.*

4. *New TND uses.*

Implementation Tools

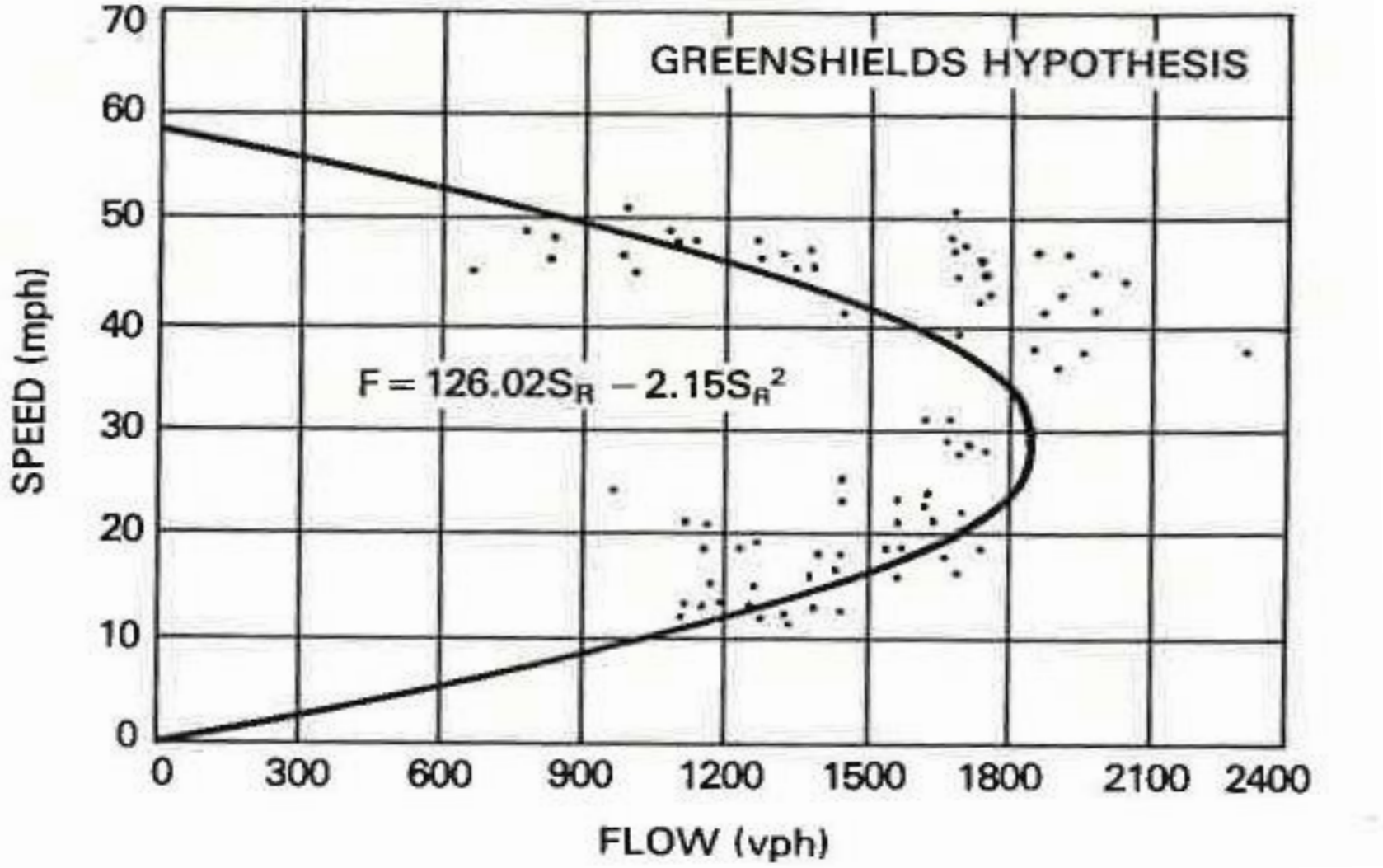
- Local Municipality
  - Rezone for location and density
  - Plan access prior to approvals
  - Create and use an Official Map
  - Lot size and frontage requirements
  - Driveway spacing, location and design
  - Shared driveways and cross access connections
  - Signal spacing and linkage requirements
  - Restrict flag lots and lot splits

- NYSDOT
  - Highway Work Permit
  - Purchase of access control
  - Medians

Topic		Question	Review Stage			Answer		
			Concept	Site Plan	Design	Yes	No	NA
Vehicle Access	V.1	Is there an opportunity to reduce the number of site driveways?	✓	✓				
	V.2	Can the proposed site provide a cross access connection to an abutting parcel?	✓	✓				
	V.3	Can the proposed site accommodate joint or shared access with an adjacent parcel?	✓	✓				
	V.4	Can the site be designed to provide an opportunity to allow joint access in the future?	✓	✓				
	V.5	Can the proposed project include a cross-access easement for future shared access or cross access?	✓	✓	✓			
	V.6	Can you achieve access from this parcel to an adjacent traffic signal?	✓	✓				
	V.7	Is the site driveway located within the influence area of an adjacent intersection?	✓	✓	✓			
	V.8	Are turning or access restrictions desirable for a proposed driveway located within the influence zone of an adjacent intersection?	✓	✓	✓			
	V.9	Is the site driveway located directly across from an existing driveway or at a location allowing for future shared use?	✓	✓	✓			
	V.10	Does the site plan show the property lines for properties to the rear, both sides, and across the street?	✓	✓	✓			
	V.11	Does the proposed project connect with the surrounding street system?	✓	✓	✓			
Pedestrian and Transit Accommodations	P.1	Does the site plan include a sidewalk connecting to adjacent properties, the adjacent roadway network, and ending at a logical terminus?	✓	✓	✓			
	P.2	Do sidewalks extend across the driveway opening?	✓	✓	✓			
	P.3	Is there an adequate pedestrian connection to a transit stop on both sides of the roadway?	✓	✓	✓			
	P.4	Is there an internal pedestrian connection to connect the building with the parking area?	✓	✓	✓			
	P.5	Are building entrances located and designed to be obvious and easily accessible to pedestrians?	✓	✓	✓			
	P.6	If there are multiple buildings on the parcel, is there an adequate pedestrian connection between the buildings?	✓	✓	✓			
	P.7	Are pedestrian accommodations sited along logical pedestrian routes?	✓	✓	✓			
	P.8	Does the site include pedestrian lighting where appropriate?		✓	✓			
	P.9	Will snow storage disrupt pedestrian access or visibility?		✓	✓			
	P.10	Is the path clear from both temporary and permanent obstructions?		✓	✓			
	P.11	Are measures needed to direct pedestrians to safe crossing points and pedestrian access ways?		✓	✓			
	P.12	Are there any conflicts between bicycles and pedestrians?		✓	✓			
	P.13	Are pedestrian travel zones clearly delineated from other modes of traffic through the use of striping, colored and/or textured pavement, signing, and other methods?		✓	✓			

Traffic

Traffic Engineering



Traffic Study – What's it for?

- Analyze the public interests and safety of a specific or generic project (SEQRA)

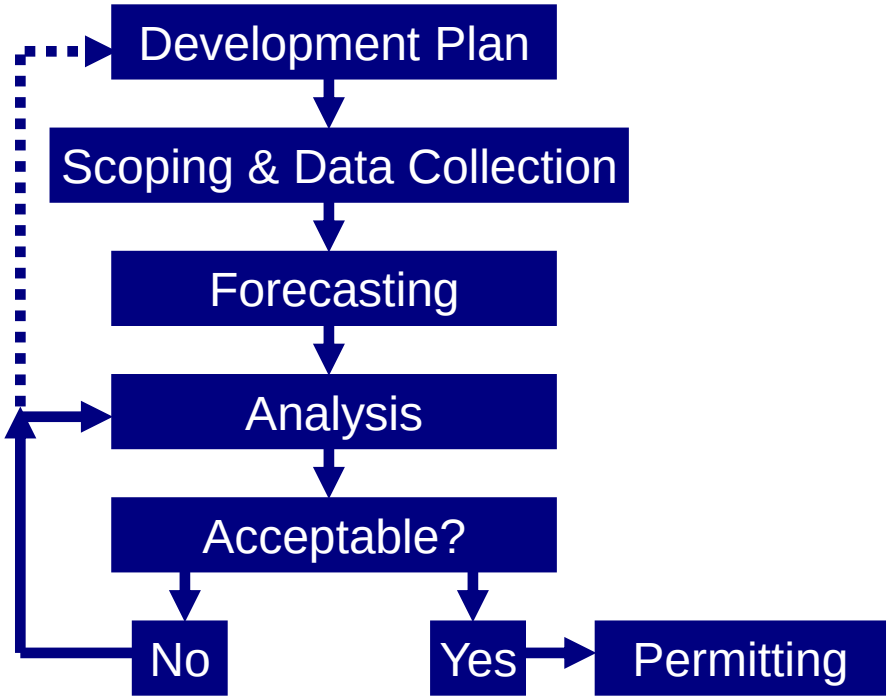
- Provide a credible basis for estimating transportation mitigation requirements

Traffic Study – Who does it?

- Professional Engineers
- Professional standards are applied to all clients
  - Public
    - » Municipal
    - » State
  - Private (developer)

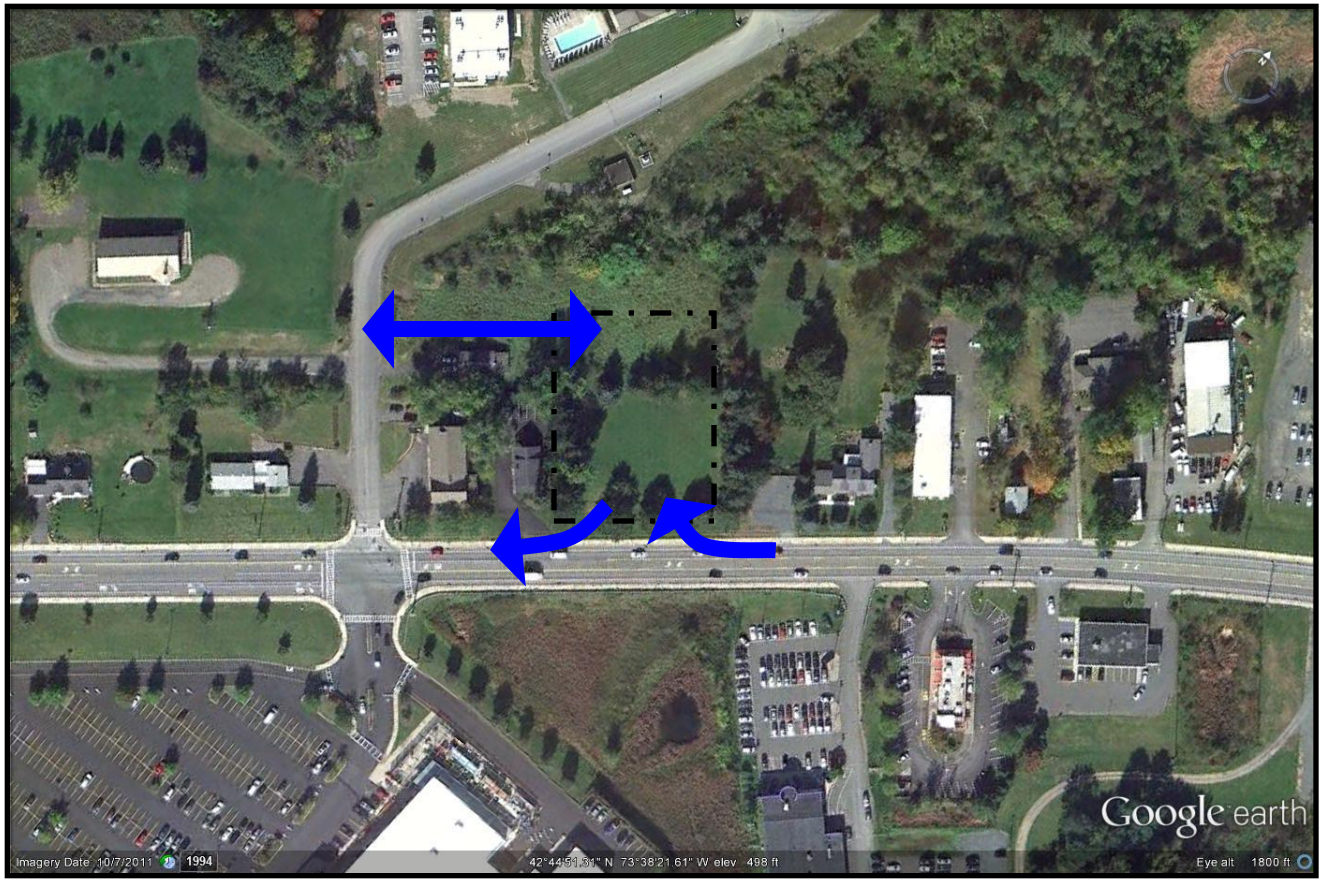
Traffic Study – What's the process?

1. Pre-planning
   - Due diligence and coordination
2. Detailed study
   - Scoping & Analysis
   - Recommendations
   - Documentation
3. Public review
   - Board presentations
   - Professional and public review
   - Modifications
   - Project Approval ?



Pre-Planning

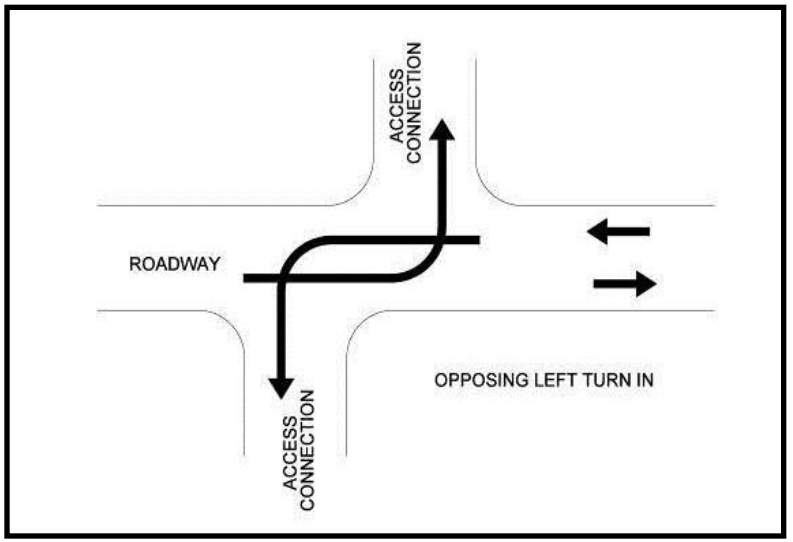
- Sites are often designed from the inside out
  - Tenant Requirement/Vision
- Often better to design from the outside in



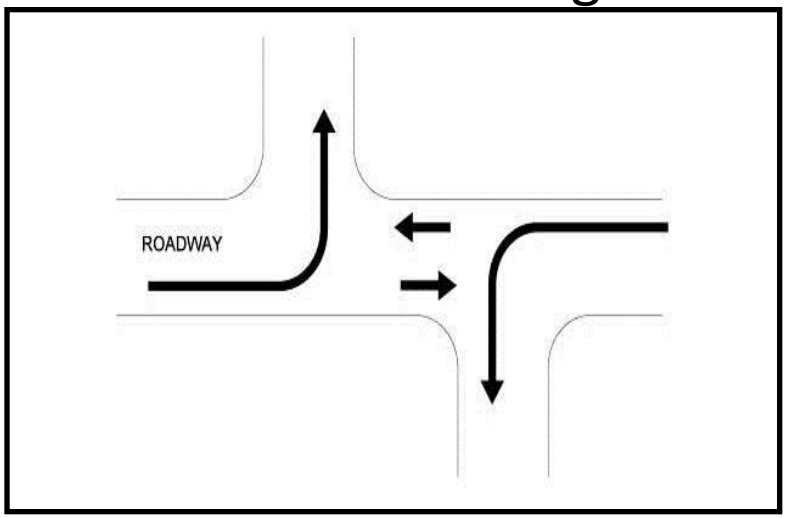
Pre-Planning and Coordination

- Site Access
  - Feasibility
  - Pedestrians, bicycles, transit
  - Sight lines
  - Local plans and standards
- Site Planning
  - Client and tenant needs
  - Right-of-way
  - Constraints
  - Adjacent uses

Poor Planning



Better Planning

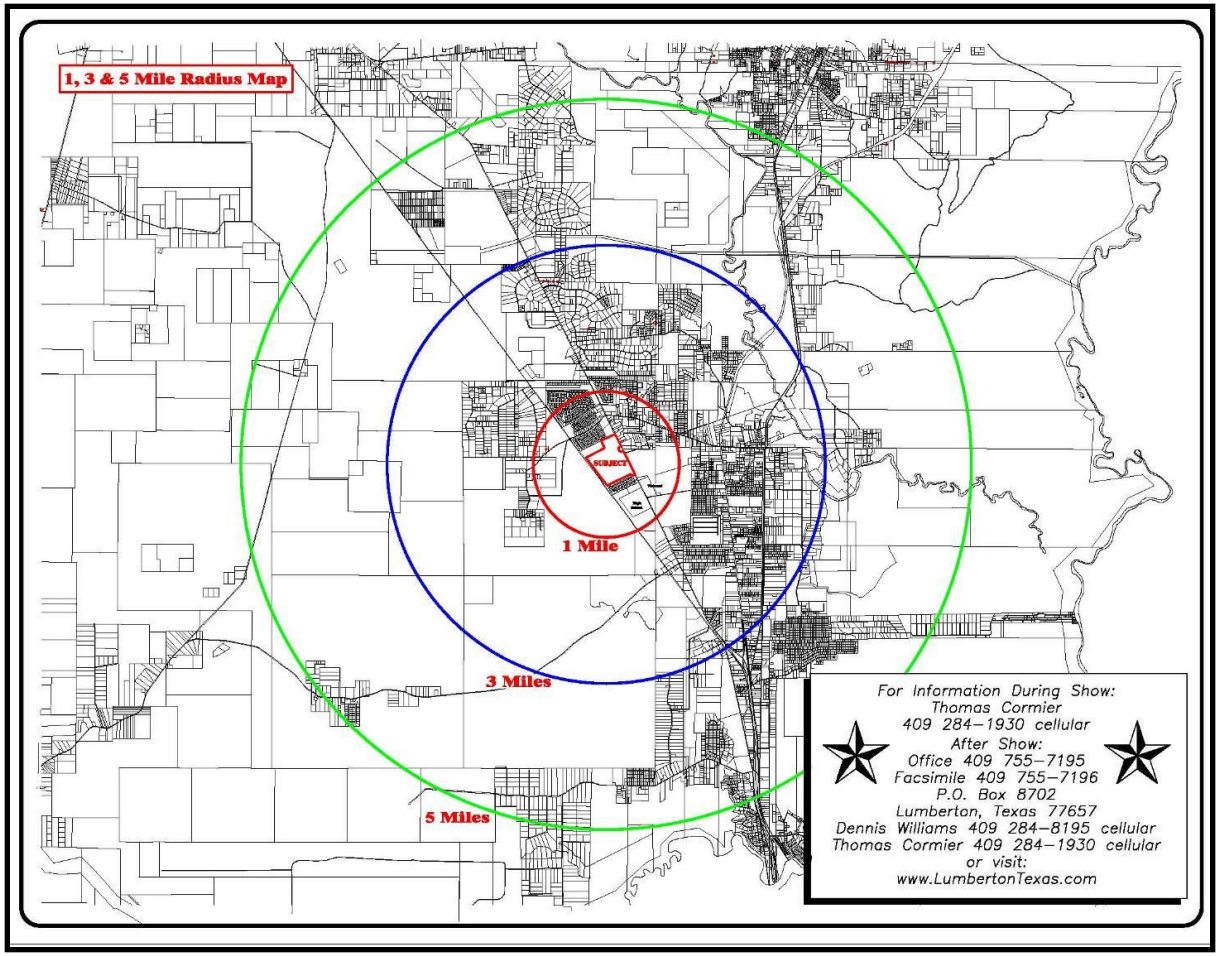


Site Engineering Impacts to Access

- Site constraints
  - Wetlands
  - Topography
  - Utilities
  - Sight Distances
  - Adjacent Driveways
- Circulation
  - Internal
  - Deliveries
  - Drive-throughs
  - Emergency access
  - Stacking

Project Scoping

- Size & location determine reasonable scope



Traffic Study- What's the process?

- Small Developments
  - Access
  - Sight Distance
  - Trip Generation
  - Letter Report
- Large Developments
  - Access
  - Sight Distance
  - Trip Generation
  - Intersection Analysis
  - Accident Assessment?
  - Detailed Technical Report

ITE Guidelines

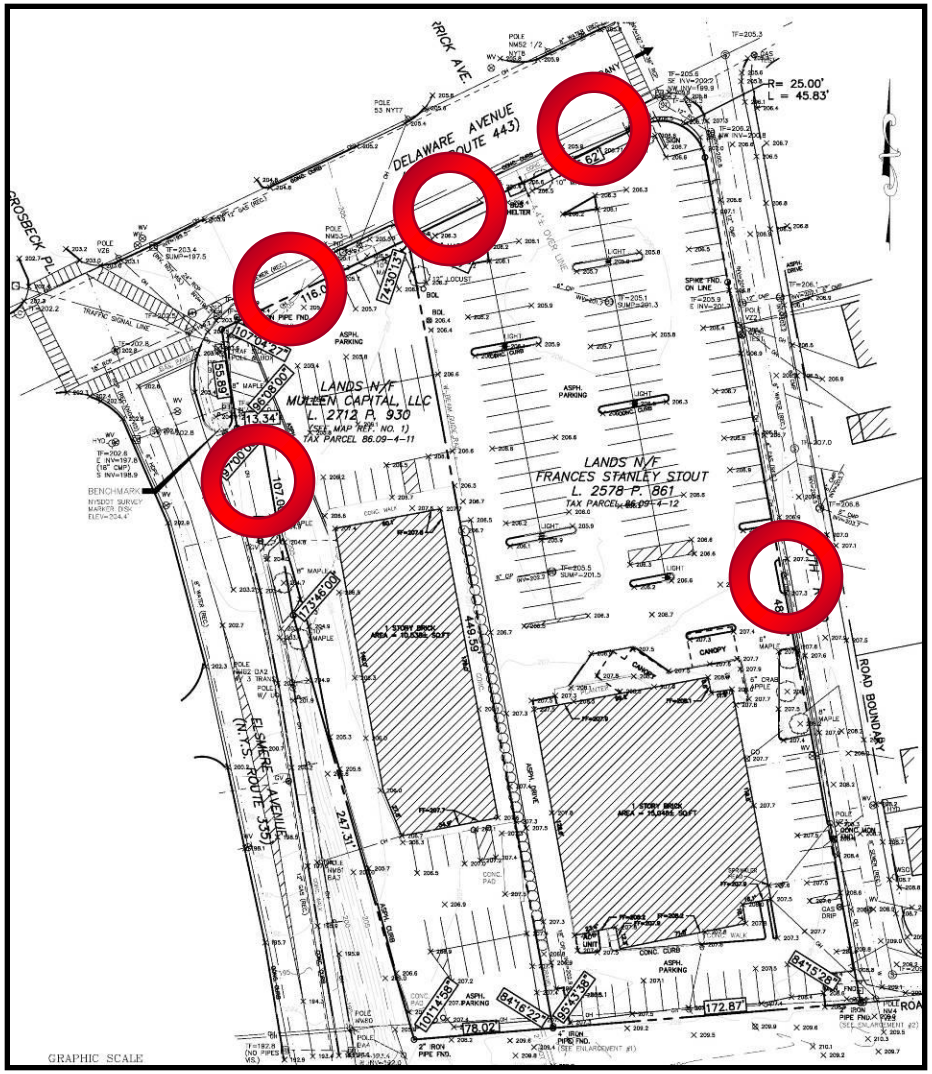
Need for Study	Local guidelines or when a proposed development will generate 100 or more added (new) trips
Study Area Limits	All site access drives, adjacent roadways, adjacent major intersections, plus first signalized intersection in each direction.

ITE Guidelines

≤ 100 Peak Hour Trips	
Single Family	90 units
Apartment	150 units
Condominium	190 units
Shopping Center	25,000 SF
General Office	67,000 SF
Medical Office	29,000 SF
Light Industrial	185,000 SF
Park & Ride Lot	160 parking spaces

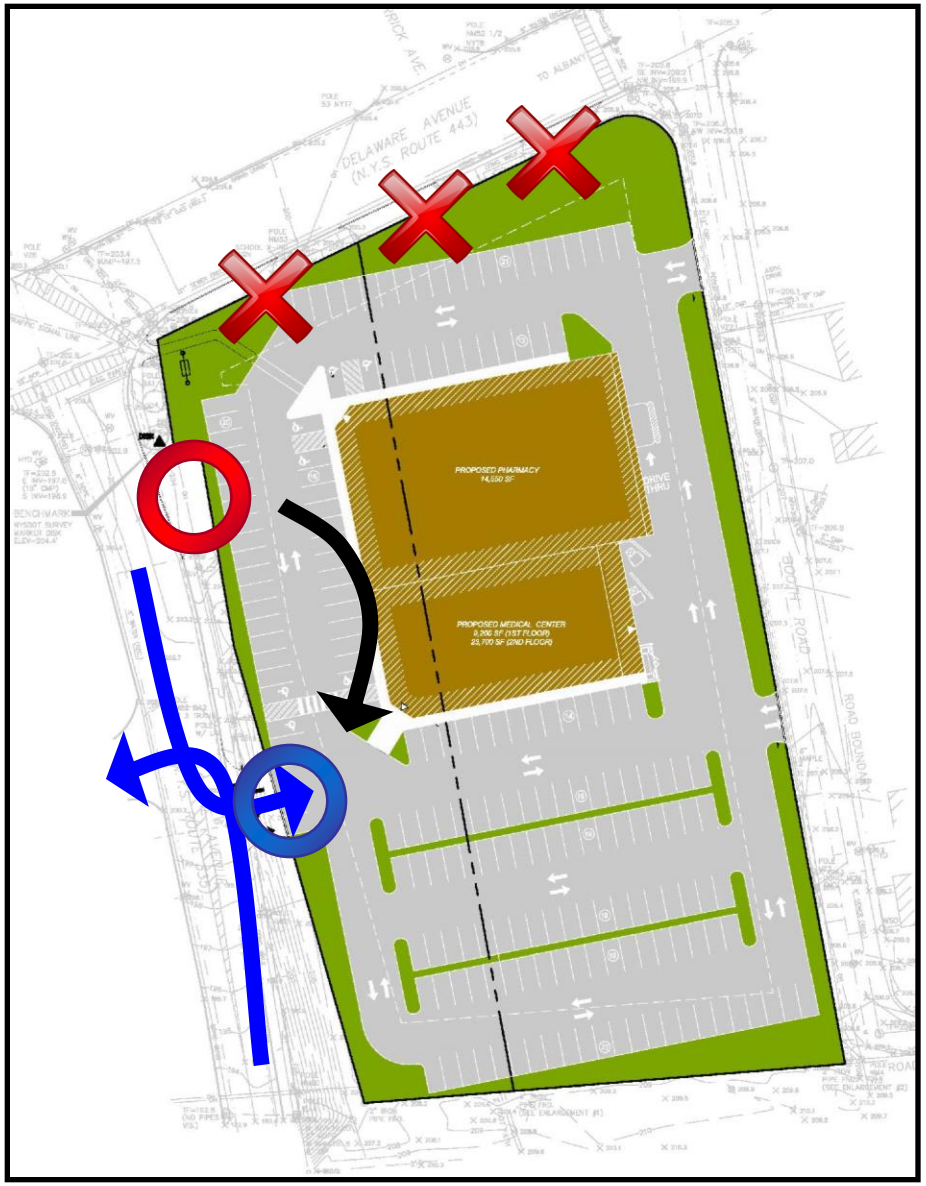
Medical Office Delmar – Existing

- 5 access points
  - 3 full access intersections with a 4-lane state roadway
  - Side street access is close to the mainline intersection



Medical Office – Modify Access

- Eliminate access to mainline
  - Closed access points on 4-lane State road
- Relocate access away from intersection
  - Creates an off-set intersection



Medical Office Delmar - Solution

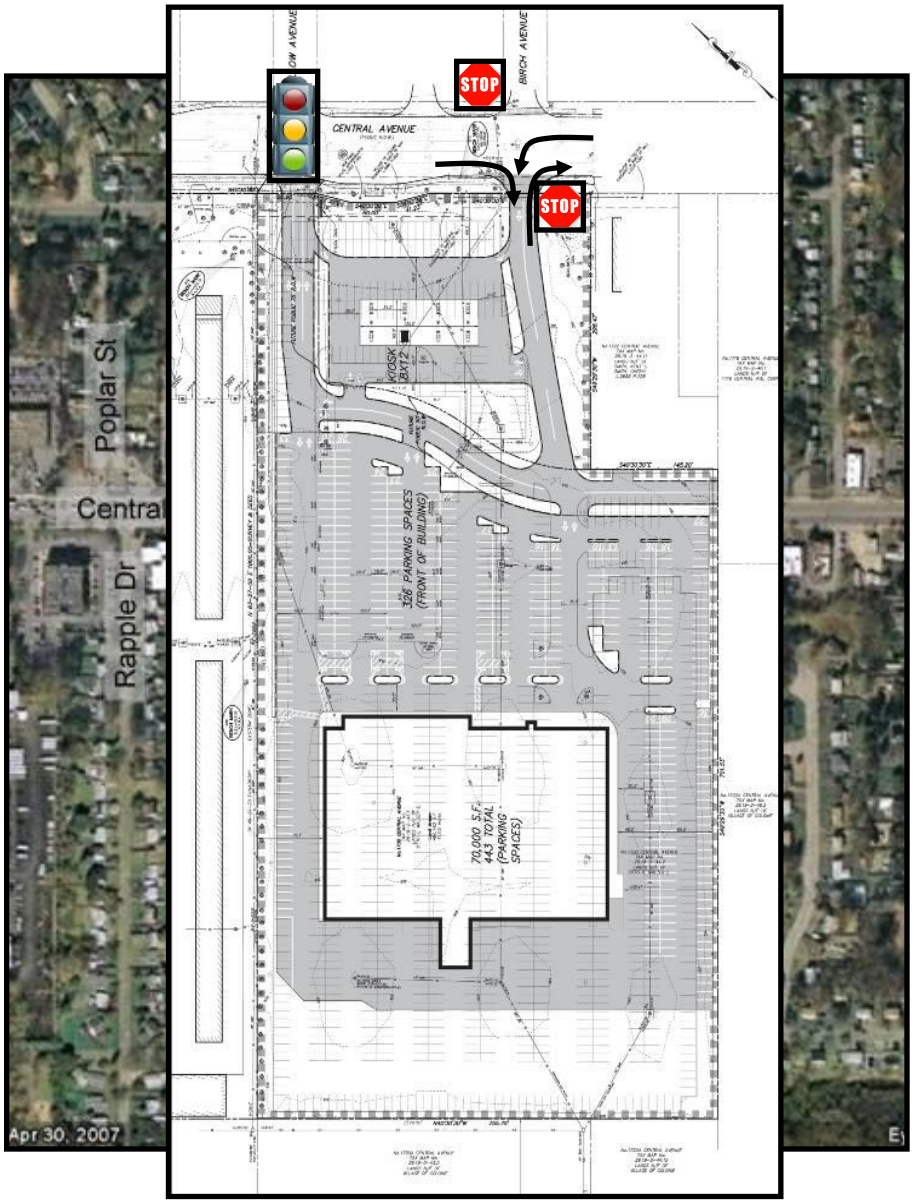
- Realign access
  - Revisions to site design
  - Moved and changed the building footprint
  - Changed the parking and site circulation
- Access management
  - Closed mainline access
  - Relocated side street driveways away from mainline
  - Aligned access with existing driveways


HAPPY HOLIDAYS
12/27/2011 14:45


250
Send your
Love to
the rescue

Supermarket on Central Ave

- Work started 1 year before submission of detailed traffic study
- Access feasibility
- Early coordination with agencies
- Pedestrian and transit considerations
- Implement access management plans

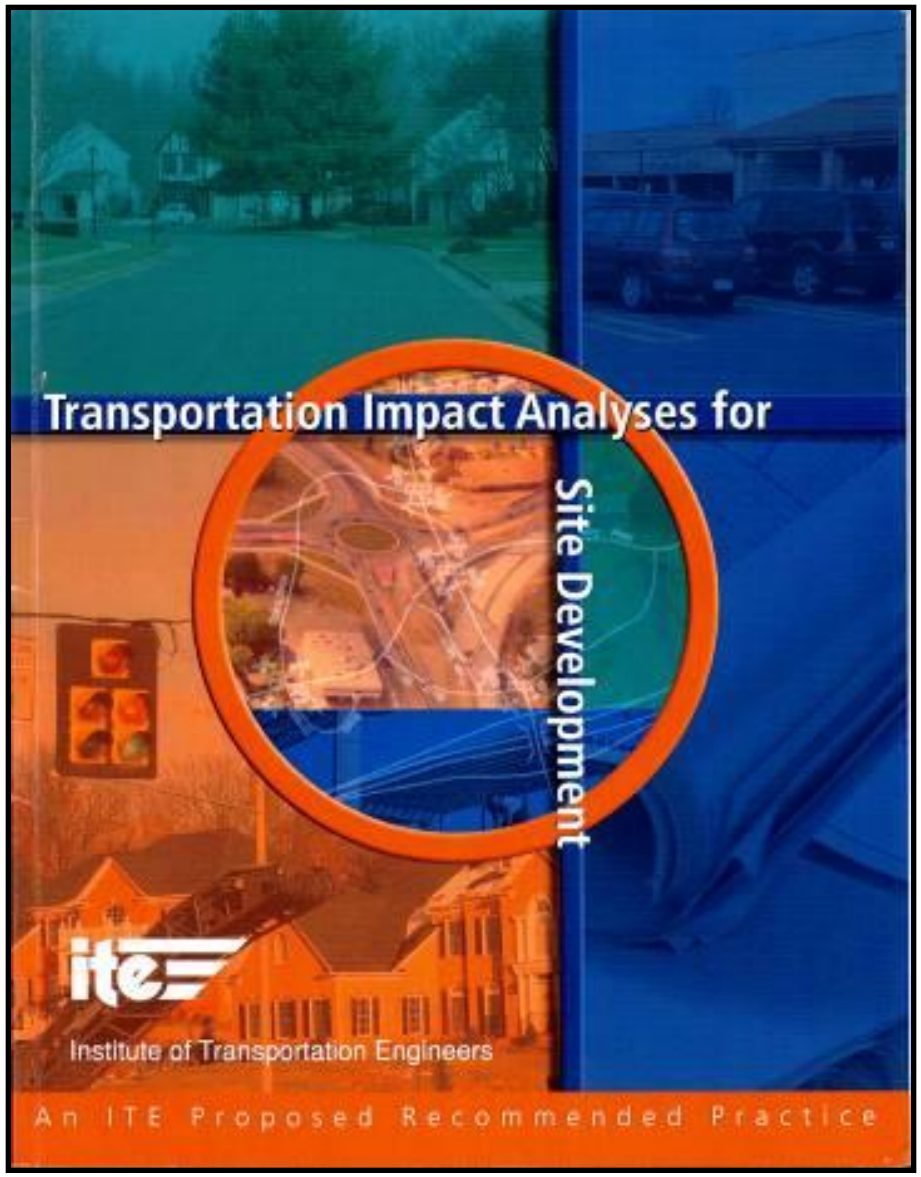


Detailed Traffic Study

- Project Scoping

Project Scoping

- Municipal input
  - Existing municipal studies (comp plans, GEIS, corridor studies, etc.)
  - Local concerns (accidents, other growth, queues, etc.)
  - Confidentiality



Data Collection

- Peak hour volumes
  - Worst-case assessment of average conditions
- Travel speed
  - Informs appropriate guidance and recommendations
- Sight distance
  - Safe access
- Accidents

Analysis

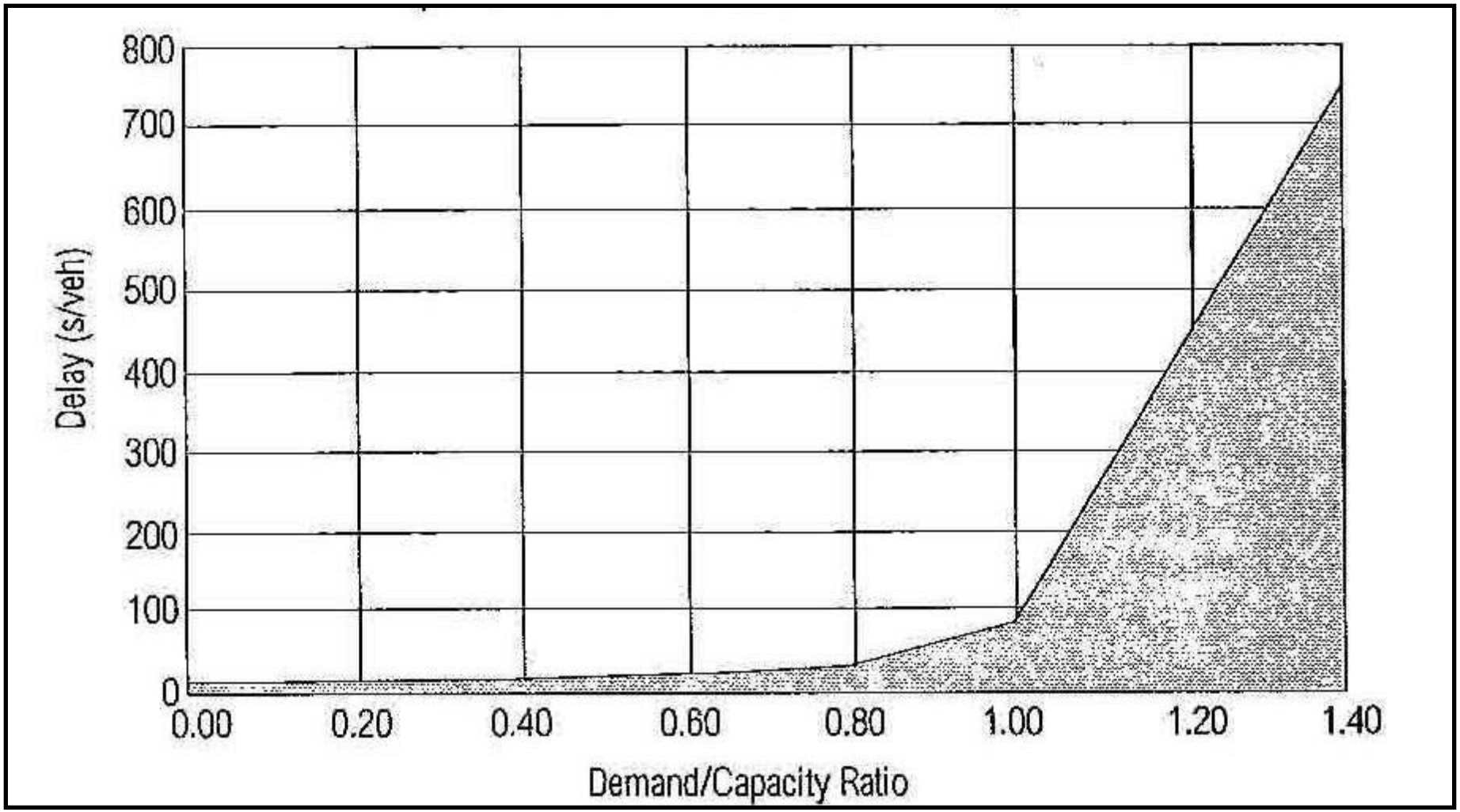
- Sight distance
  - AASHTO guidelines
- Intersection analysis
  - Highway Capacity Manual (HCS, Synchro, SIDRA, VISSIM)
  - Capacity, Level of Service, queues
  - Signal warrants
  - Turn lane guidelines

What is Level of Service?

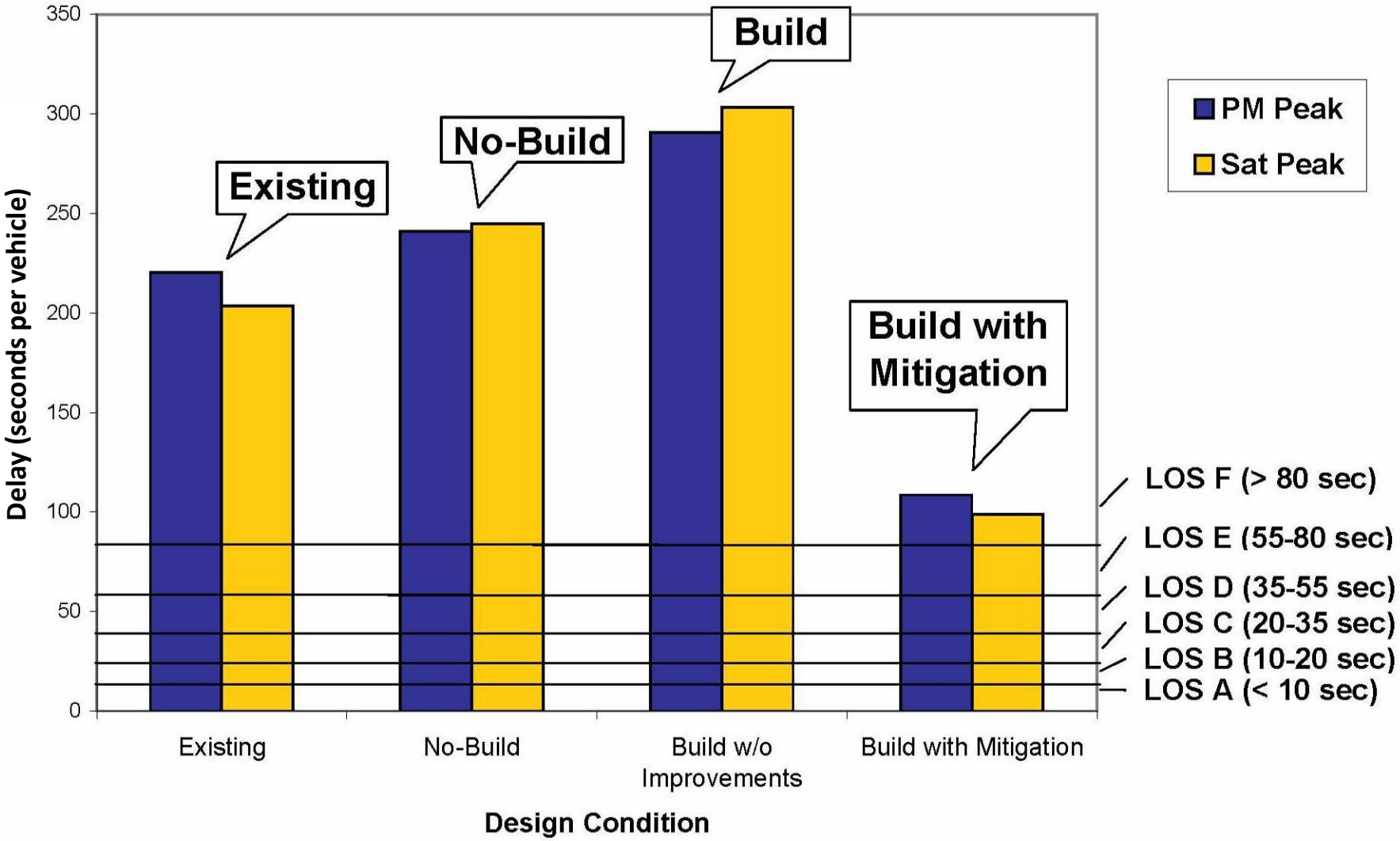
Level of Service Criteria (for Intersections)
based on the 2010 Highway Capacity Manual

Signalized (Delay seconds/vehicle)	LOS	Unsignalized (Delay seconds/vehicle)
0 to 10	A (Little or No Delay)	0 to 10
10 to 20	B (Short Traffic Delay)	10 to 15
20 to 35	C (Average Traffic Delay)	15 to 25
35 to 55	D (Long Traffic Delay)	25 to 35
55 to 80	E (Very Long Traffic Delay)	35 to 50
>80	F (Delay Unacceptable to Drivers)	>50

Problems / Challenges

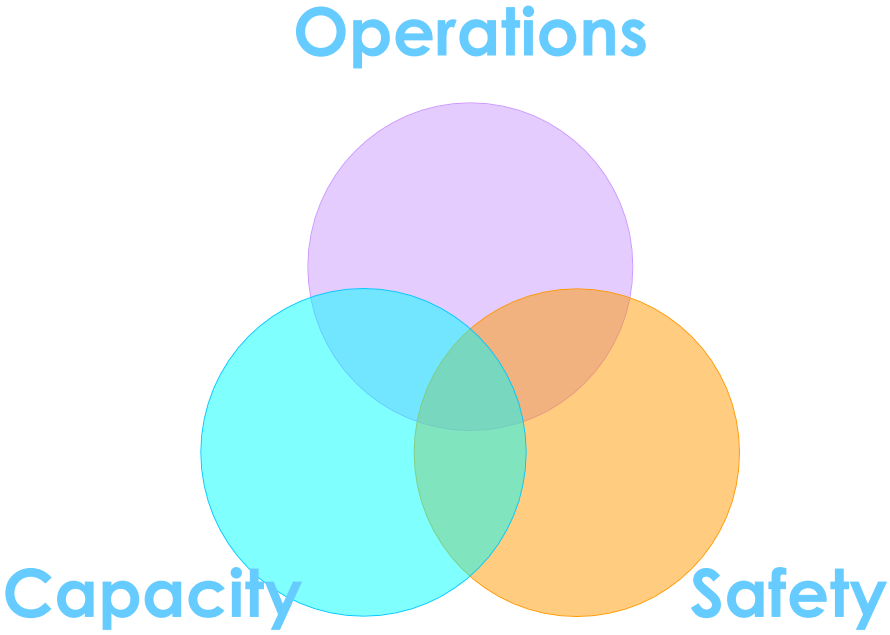


Overall Delay "Five Corners" Intersection



Recommendations

- Site access and Circulation
  - Relocate, restrict, remove
  - Control (stop sign, yield sign, signal)
  - Geometry
- Intersection capacity
  - Geometry (add or change lanes)
  - Control (sign, signal, roundabout)
- Other Modes:
  - Transit - Bicycles - Pedestrians

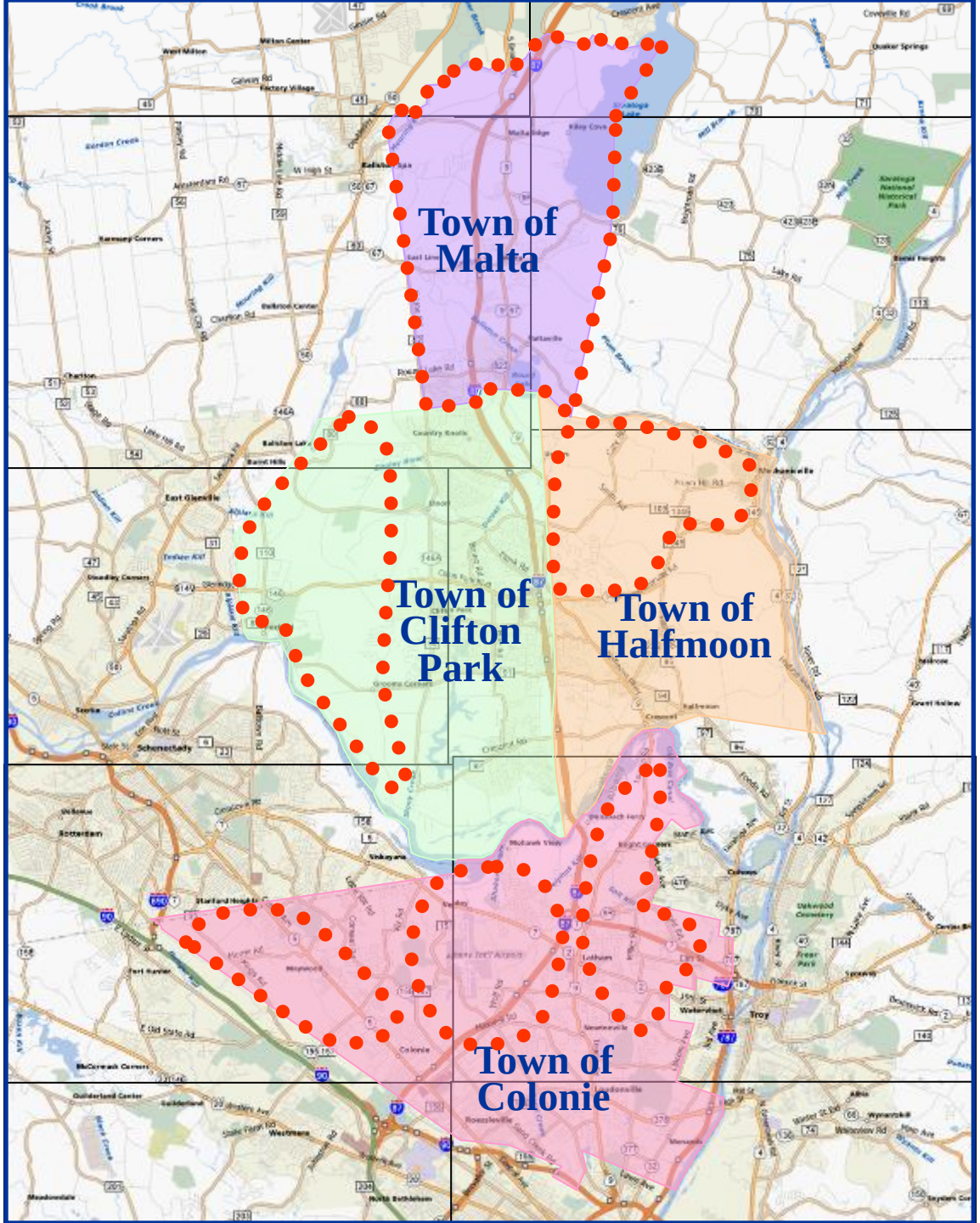


Non-Motor Vehicle Mitigation

- Reduce/change development land use
- Park-and-ride lots/shared parking
- Easements/linkages/shared access
- Right-of-way donations (more to come)
- Transit use
- Amenities
- Promote viable bike/ped travel with on-site facilities (bike racks, lockers and showers)

Generic Environmental Impact Statement

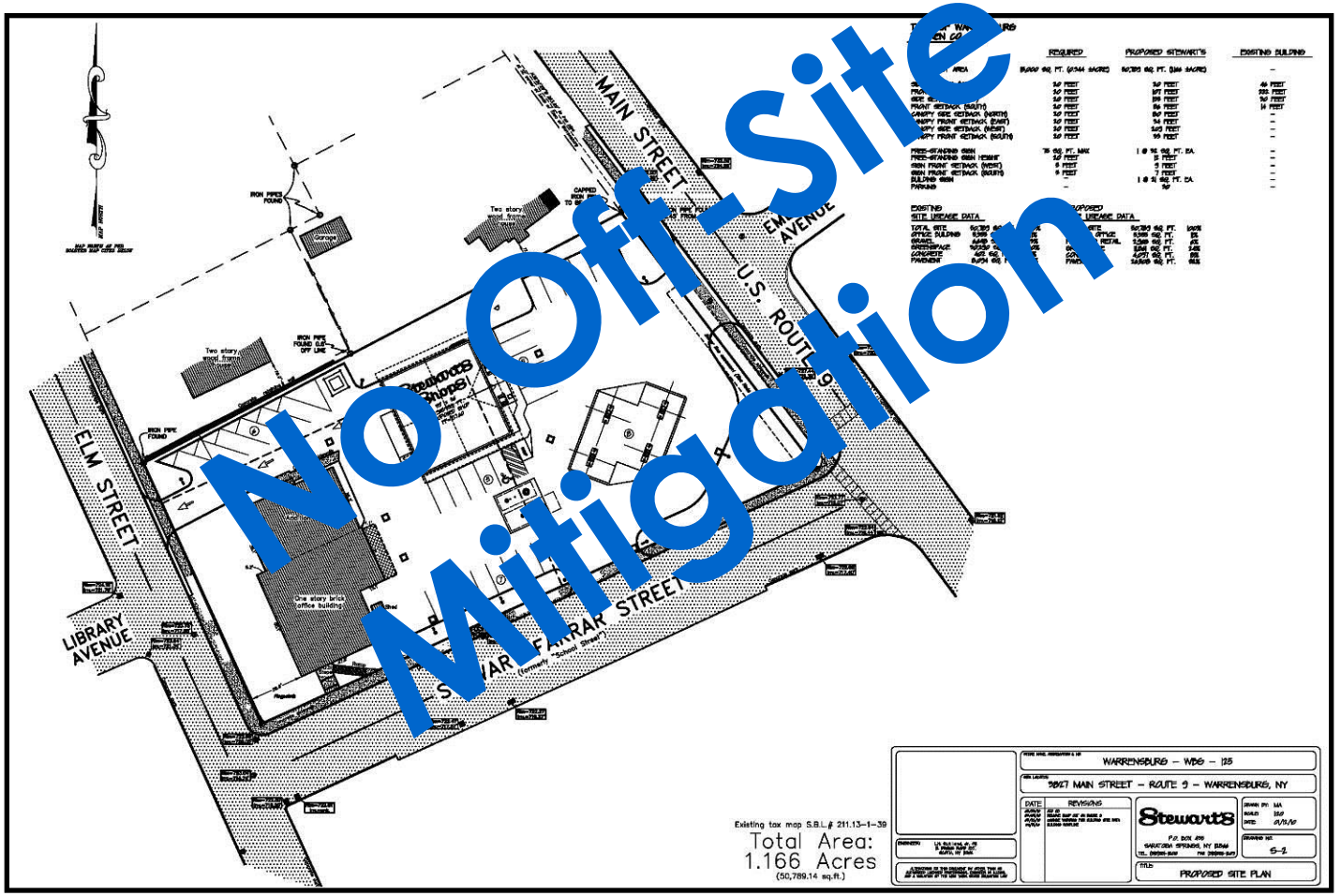
- Evaluates cumulative effects of several actions versus effects of individual actions
- Establishes legal basis for efficient site development review
- Allows adoption of mitigation cost program
- Ensures mitigation costs are equitable and related to impact created
- Significant investment, but reimbursable


Town of Malta
Town of Clifton Park
Town of Halfmoon
Town of Colonie

Generic Environmental Impact Statement

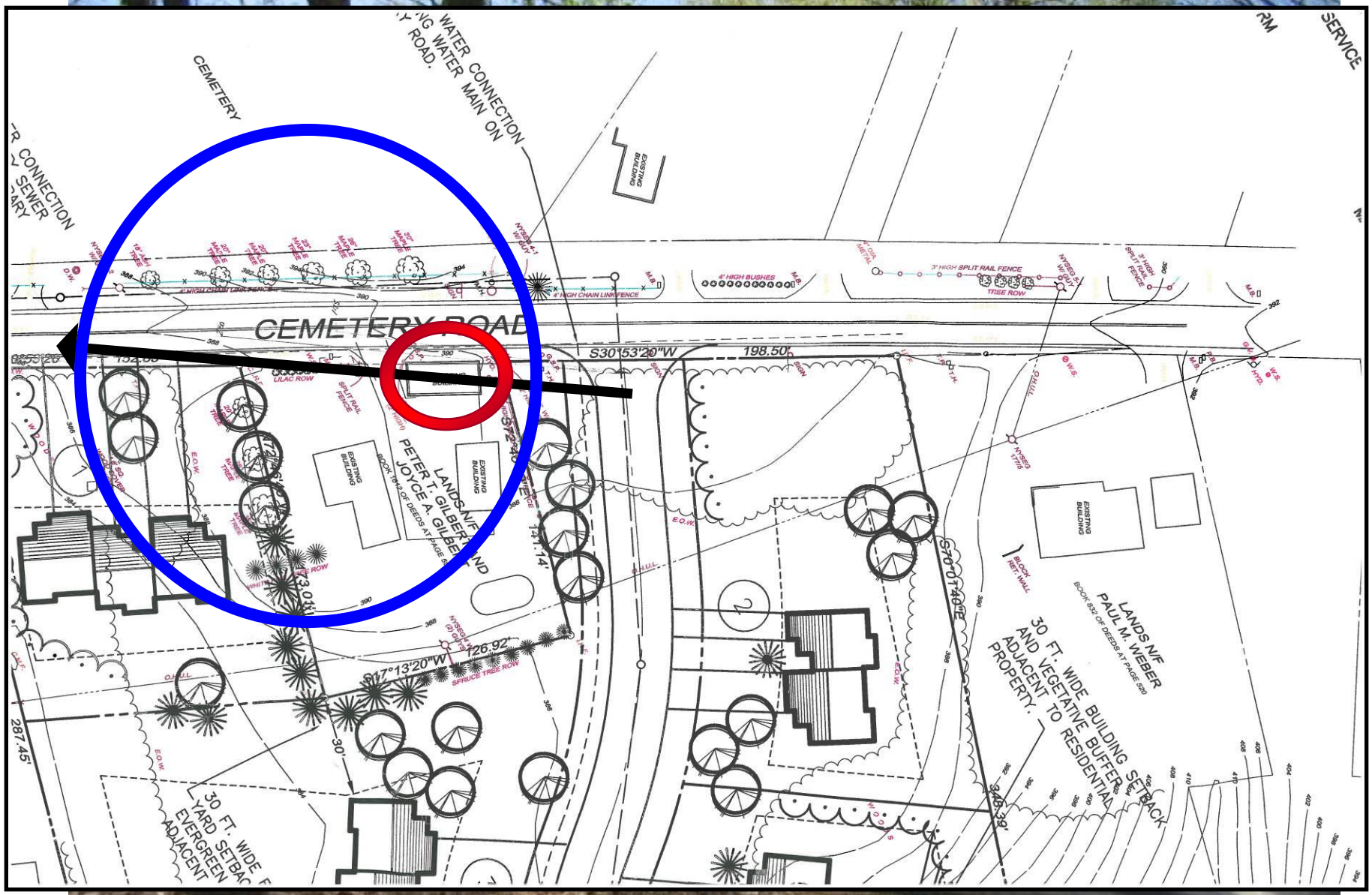
Recommendations

- SEQRA requires:
  - Site-related mitigation (no-build to build comparison)

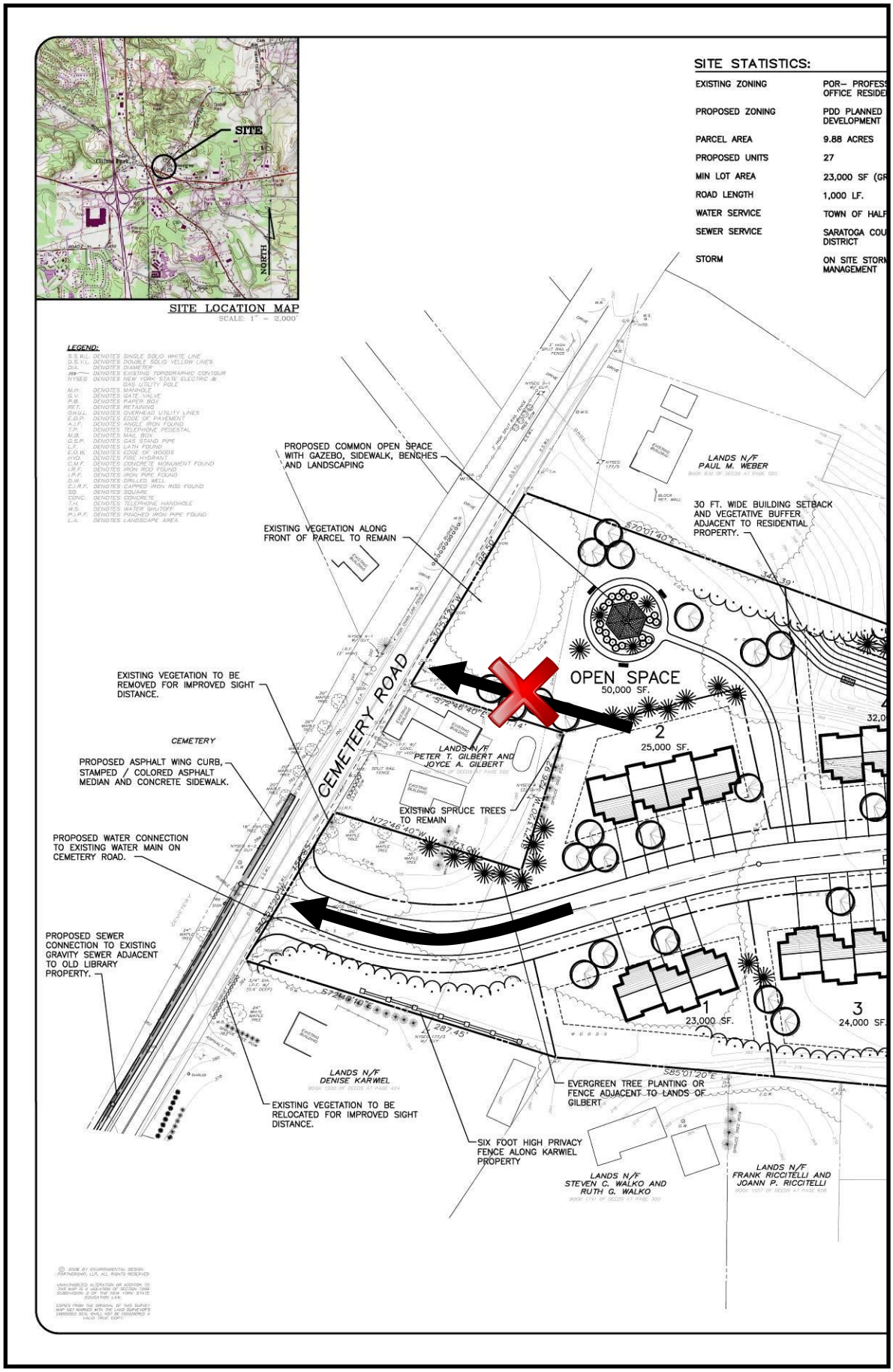


Recommendations

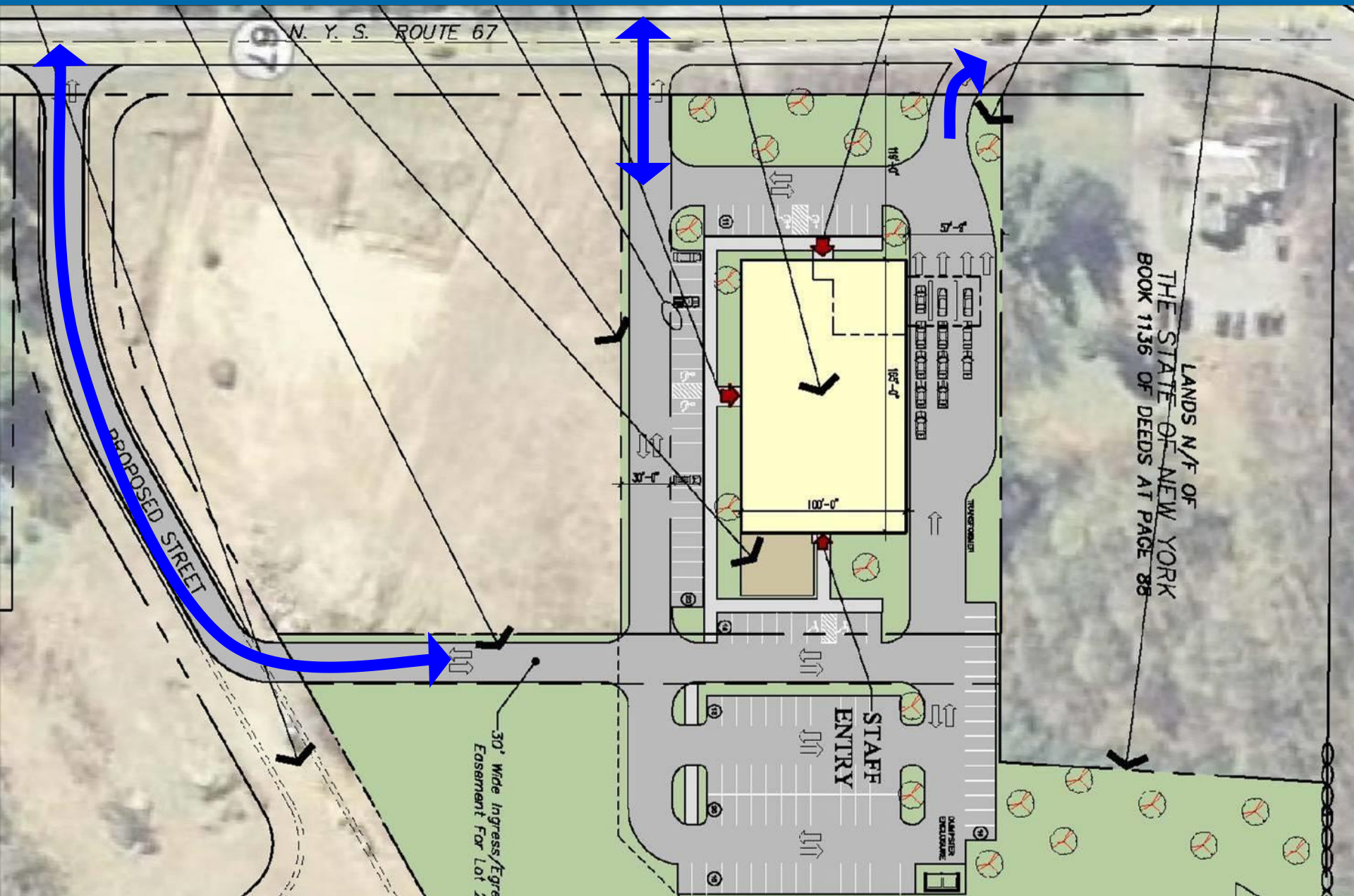
Residential Project



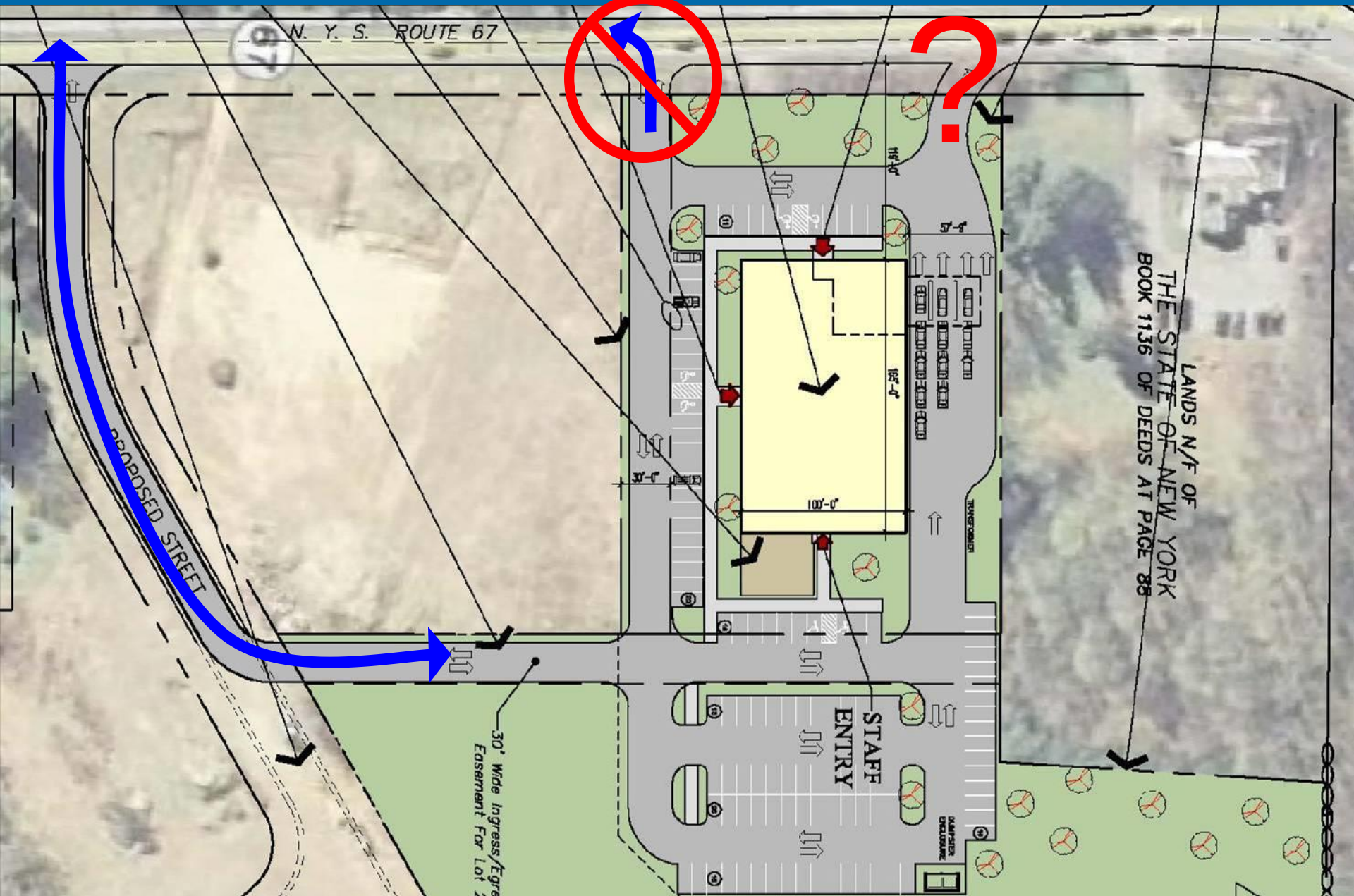
Residential Project



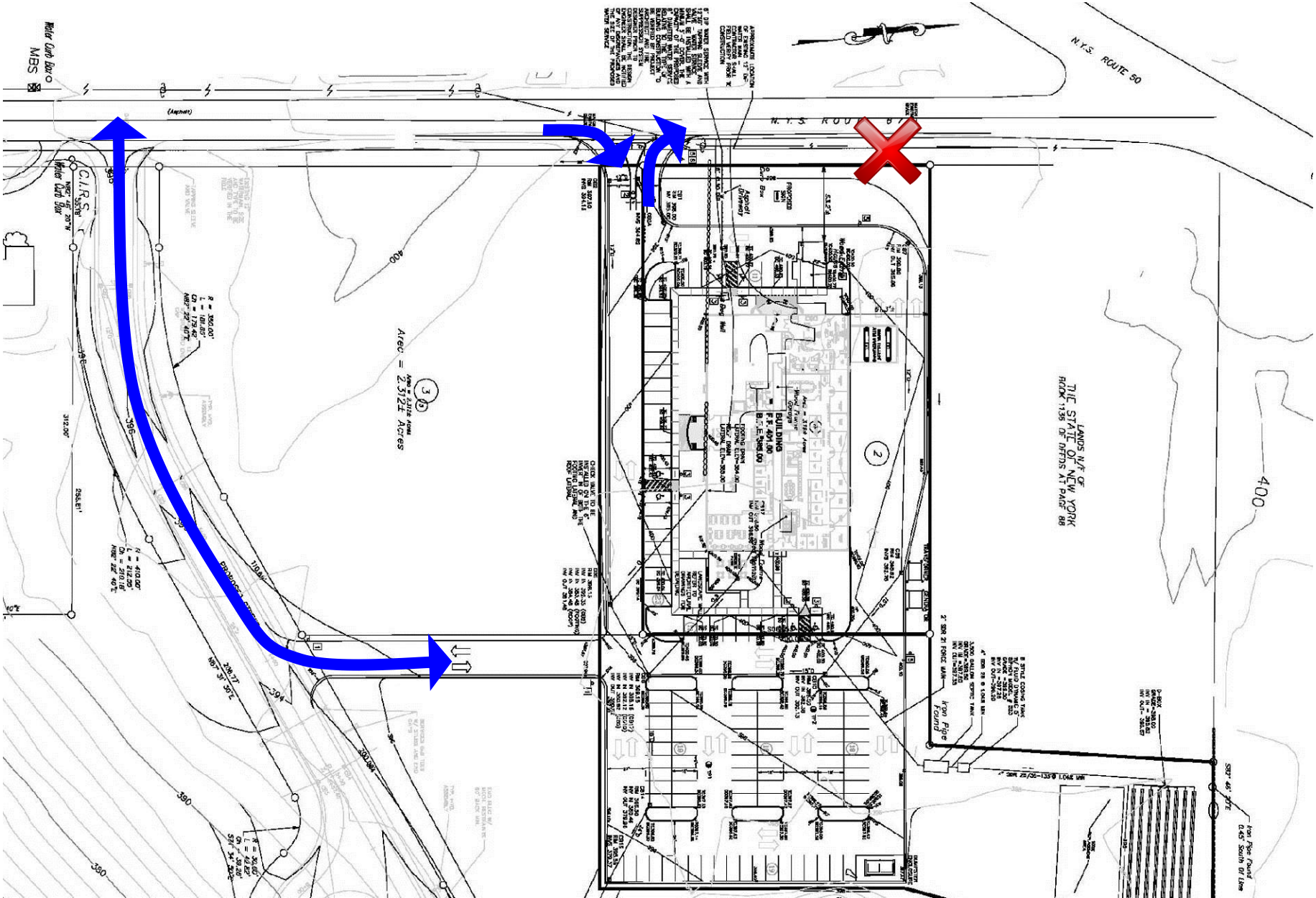
Access Restrictions



Access Restrictions

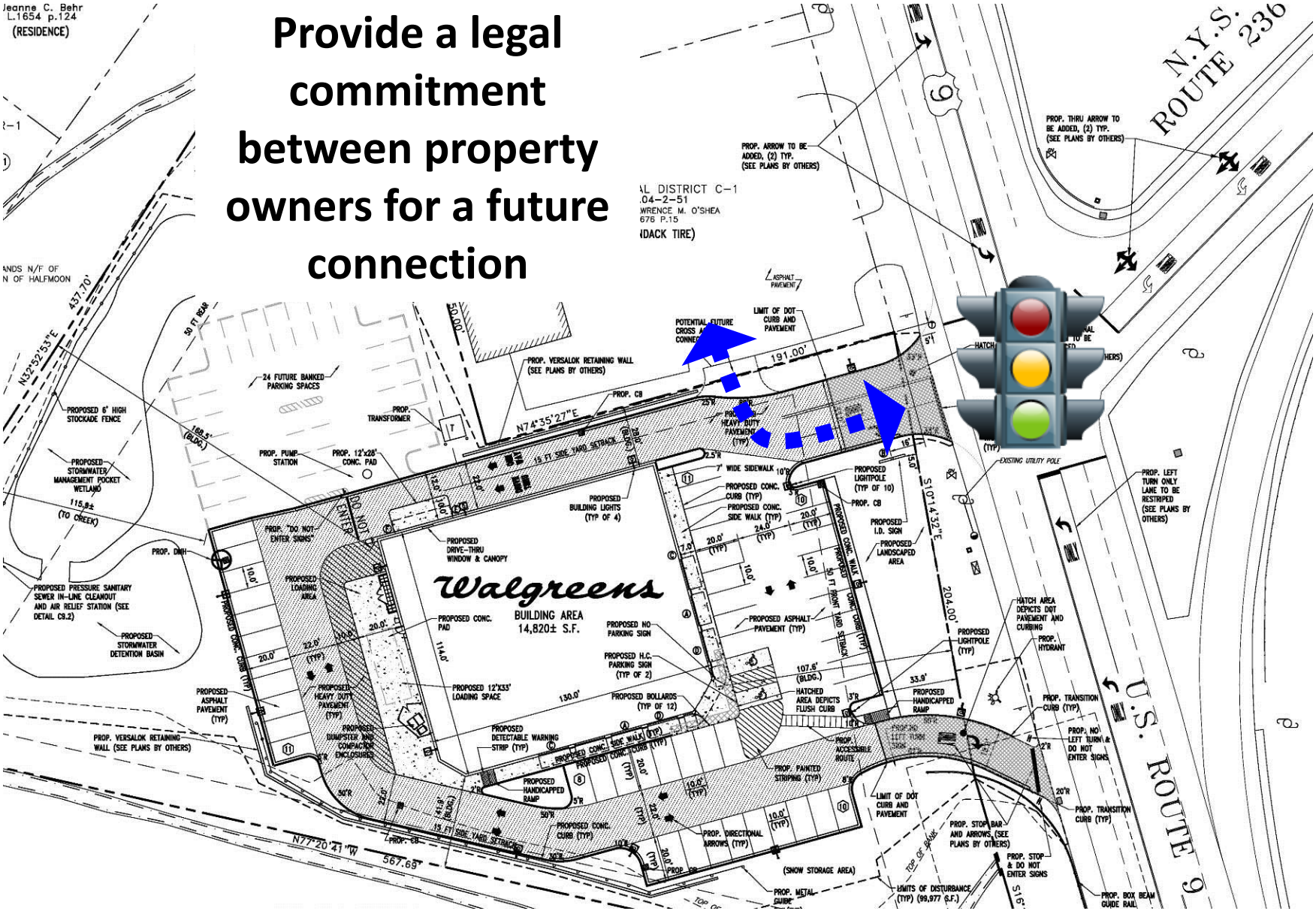


Access Restrictions

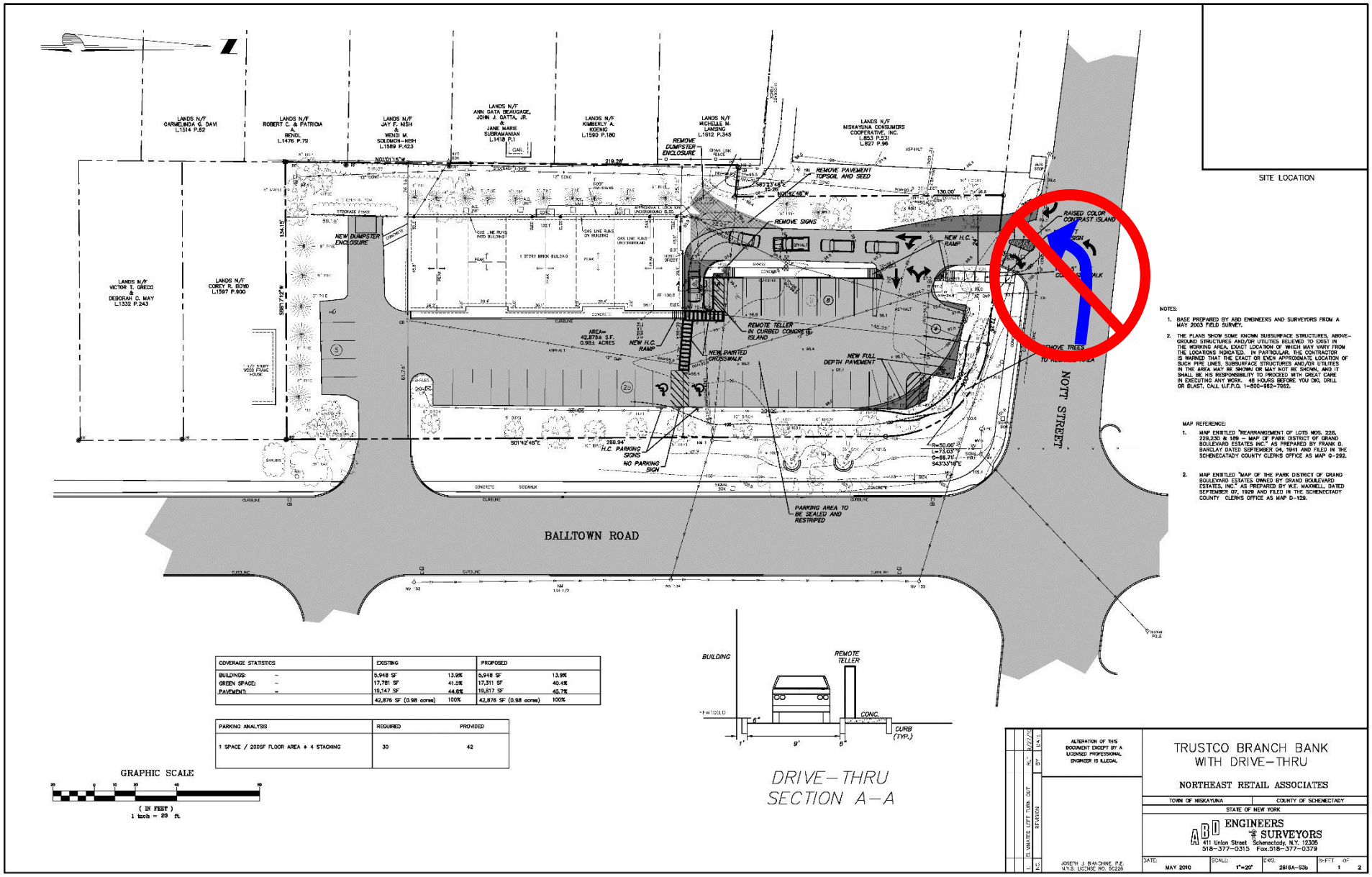


Shared Access

Provide a legal commitment between property owners for a future connection



Niskayuna Bank



NOTES:

1. BASE PREPARED BY ABD ENGINEERS AND SURVEYORS FROM A MAY 2003 FIELD SURVEY.
2. THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE-GROUND STRUCTURES AND/OR UTILITIES BELIEVED TO EXIST IN THE WORKING AREA, EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPE LINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE SHOWN OR MAY NOT BE SHOWN, AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK. 48 HOURS BEFORE YOU DIG, DRILL OR BLAST, CALL U.F.P.O. 1-800-962-7962.

MAP REFERENCE:

1. MAP ENTITLED "REARRANGEMENT OF LOTS NOS. 228, 229,230 & 189 – MAP OF PARK DISTRICT OF GRAND BOULEVARD ESTATES INC." AS PREPARED BY FRANK D. BARCLAY DATED SEPTEMBER 04, 1941 AND FILED IN THE SCHENECTADY COUNTY CLERKS OFFICE AS MAP 0-292.
2. MAP ENTITLED "MAP OF THE PARK DISTRICT OF GRAND BOULEVARD ESTATES OWNED BY GRAND BOULEVARD ESTATES, INC." AS PREPARED BY W.E. MAXWELL, DATED SEPTEMBER 07, 1929 AND FILED IN THE SCHENECTADY COUNTY CLERKS OFFICE AS MAP D-129.

COVERAGE STATISTICS		EXISTING		PROPOSED	
BUILDINGS:	–	5,948 SF	13.9%	5,948 SF	13.9%
GREEN SPACE:	–	17,781 SF	41.5%	17,311 SF	40.4%
PAVEMENT:	–	19,147 SF	44.6%	19,617 SF	45.7%
		42,876 SF (0.98 acres)	100%	42,876 SF (0.98 acres)	100%

PARKING ANALYSIS	REQUIRED	PROVIDED
1 SPACE / 200SF FLOOR AREA + 4 STACKING	30	42

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

DRIVE–THRU SECTION A–A

ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL ENGINEER IS ILLEGAL.

JOSEPH J. BIANCHINE, P.E.
N.Y.S. LICENSE NO. 50226

TRUSTCO BRANCH BANK
WITH DRIVE–THRU

NORTHEAST RETAIL ASSOCIATES

TOWN OF NISKAYUNA | COUNTY OF SCHENECTADY
STATE OF NEW YORK

ABD ENGINEERS & SURVEYORS
411 Union Street Schenectady, N.Y. 12305
518-377-0315 Fax 518-377-0379

DATE:	SCALE:	DWG.	SHEET	OF
MAY 2010	1"=20'	2818A-S3b	1	2

Misconceptions?

Misconceptions	Reality

"There is never enough mitigation"	• Mitigation often occurs prior to formal submittal
	• Mitigation is more than providing additional roadway or intersection capacity
	  • Pedestrian accommodations
	  • Transit improvements
	  • Access management
	• Mitigation isn't needed for all projects to comply with SEQRA
	  • Professional and public reviews are part of SEQRA

"Studies are biased"	• Studies are conducted based upon professional standards and requirements • The SEQRA process allows for additional professional review

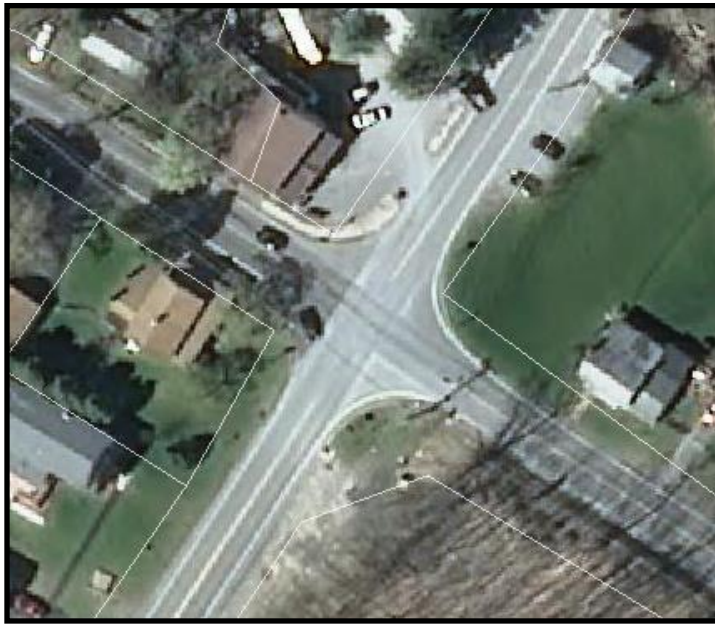

RICHMOND TIMES-DISPATCH
6/05
BROOKINS
SUPREME COURT
LOCAL GOVTS.
PRIVATE PROPERTY

Right-of-Way

Right-of-way: Needs

- Private Development often contributes enhancements to the transportation system
- Often of these enhancements require additional property to implement

Considerations



- Quality of public data:
  - Tax Map/GIS – low accuracy
  - Deeds – moderate accuracy
  - Field Survey – high accuracy
  - User Roads – undefined
  - Turnpikes – 4 survey rods wide (66 feet)
- Is it designated as without access?
- <u>Consider:</u> Is more ROW data required beyond the immediate site?

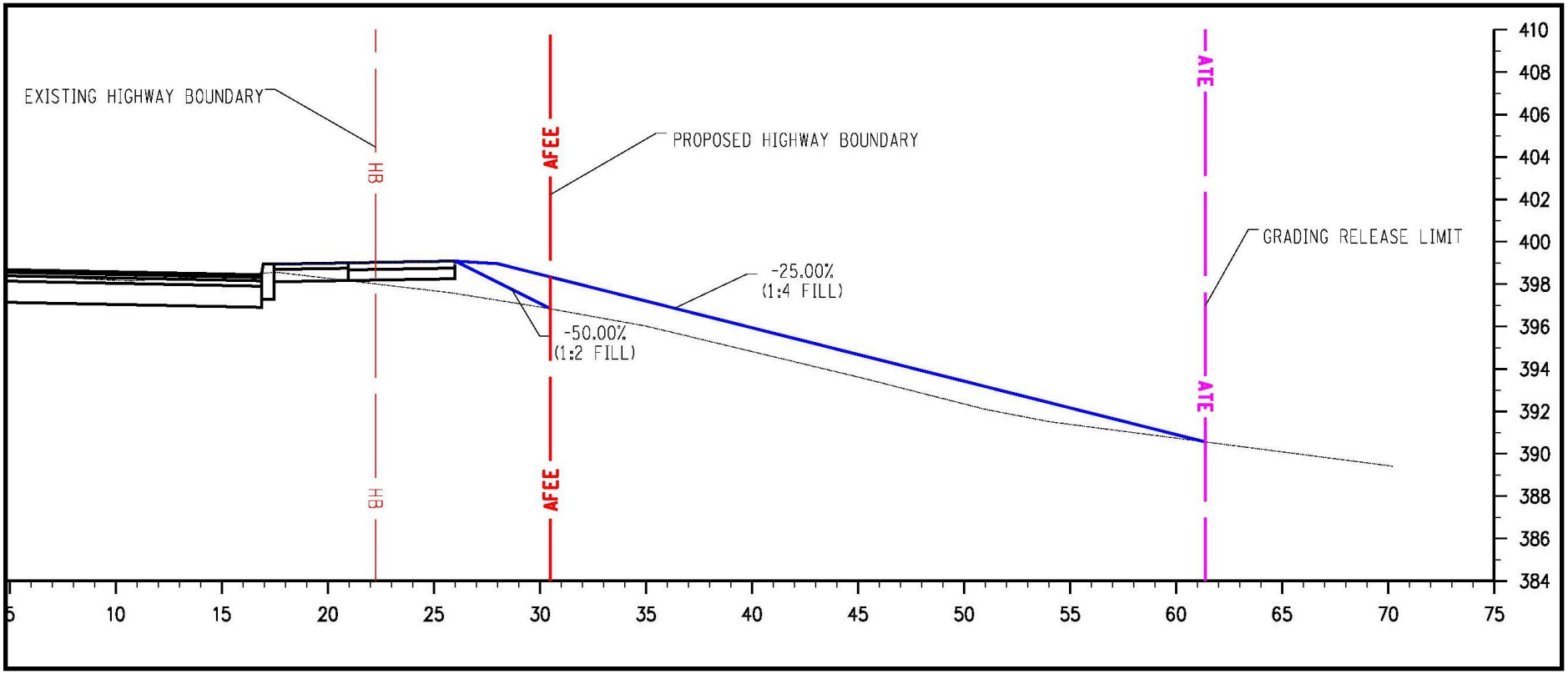
Image Source: Ulster County GIS

Types of Impacts

Type	Used For
Grading Release	Driveway or sidewalk reestablishment, grading, landscaping, etc.
Temporary Easement (TE)	If work is required on private property to meet standards (i.e driveway grade) – "Can you build without?"…Build a wall
Permanent Easement (PE)	Utility easement, maintenance of drainage facility, etc.
Acquisition (FEE)	Land is needed to for the roadway facility (support)

Types – Grading Release

Example: Provide a flatter lawn grade

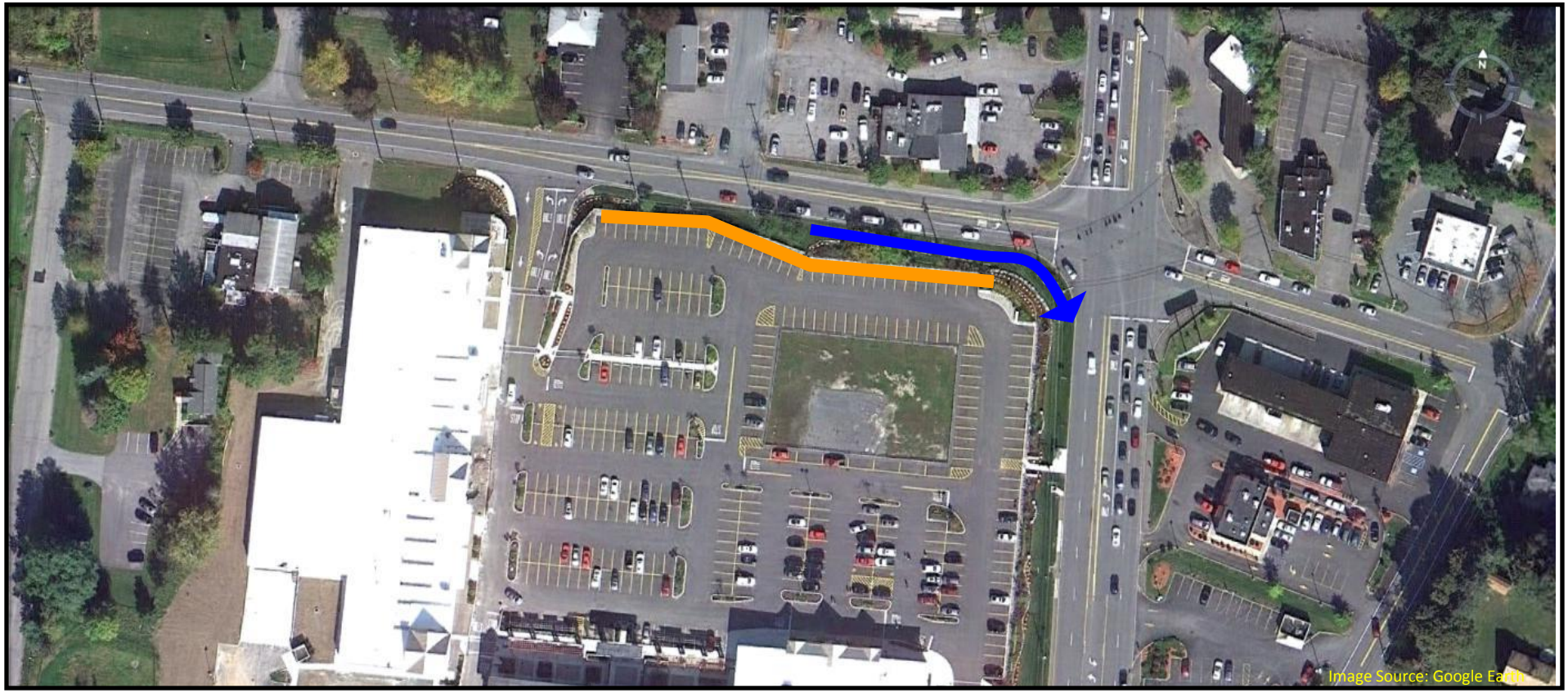


Types – Permanent Easement

Example: Path/Trail; Clearing easement to maintain sight distances

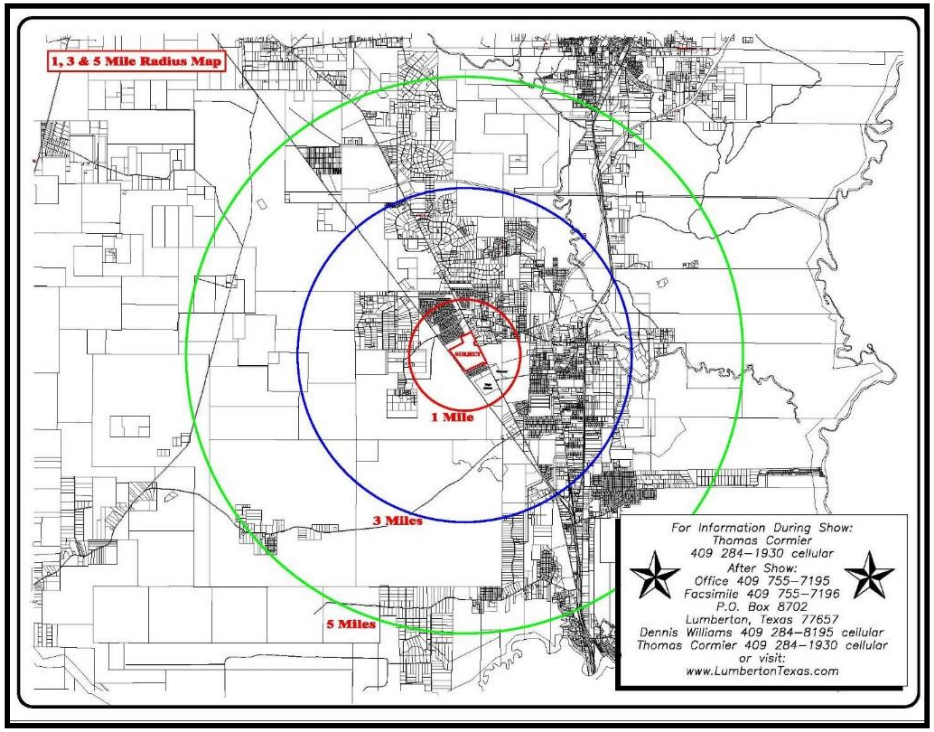
Right-of-way - Considerations

- Right-of-way adjacent to site can be “donated” during site plan review
  - Example: Widen for future turn lane at site entrance or sidewalk along frontage



Right-of-way - Considerations

- Is the real-estate required to construct improvements outside of the applicants control?
  - Is it located far away from immediate site location?
  - Are the effected owners in favor of project?



Right-of-way – Considerations

- Are there competing interests?

Image Source: Wikipedia and Bloomberg Finance

Right-of-way - Considerations

- Owner history with municipality or other government agency?
  - Prior right-of-way taking by government?
  - Was their home relocated by government?
  - Hatfields and McCoys?

Image Source: St. Louis Today.com

Right-of-way - Considerations

- Will acquisition reduce value of a parcel or limit future redevelopment?
  - Setback violations?
  - Minimum parcel size?

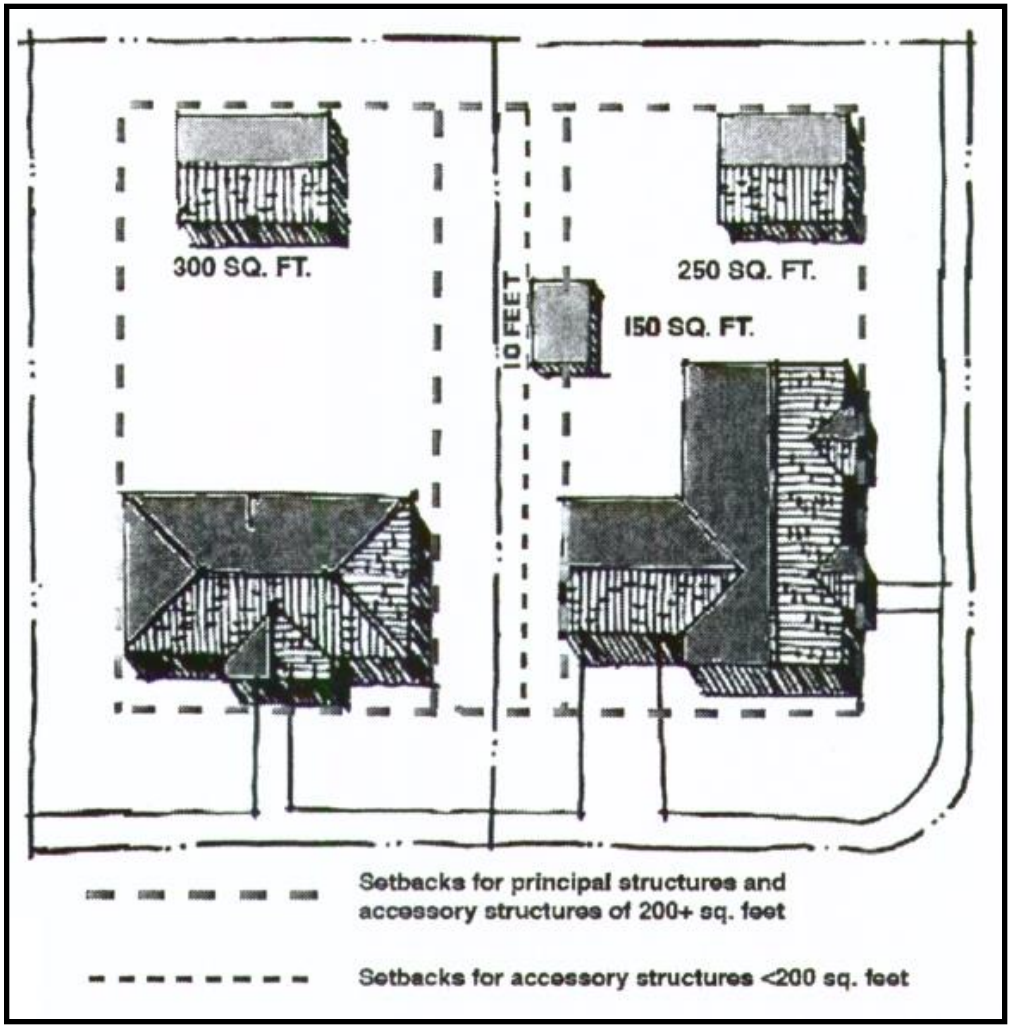


Image Source: Town of Wawarsing Code – ecode360.com

Mitigation Options

1. Applicant led
   - Applicant permits and constructs improvements
   - Applicant covers all project costs (engineering, construction, etc.)
   - Applicant obtains all real-estate required

2. Mitigation fee
   - Assess fee based on cost/trip, utilized capacity, etc. (GEIS based)
   - Physical improvements not necessarily made
   - Allows municipality to combine funds with other funding sources (state, federal, other mitigation)
   - Real-estate acquisition is delayed
   - Municipality obtains real-estate
     - » Condemnation (Eminent Domain and Just Compensation)
     - » Negotiations

Mitigation Options

3. Escrow account payments
   - Applicant contributes money towards mitigation project cost
   - Municipality progresses mitigation project, obtains permits, administers construction, etc.
   - Project/Location specific accounts
     - » Each applicant that impacts location is assessed fee/trip
     - » Example: Sidewalk for length of corridor with logical termini
   - Municipality obtains real-estate

Case Study – The Natives Are Restless

- Background:
  - Proposed site expansion that triggers SEQR
  - Traffic impact study identifies mitigation:
    - » Additional turn lanes and sidewalks
  - 15 privately owned parcels impacted
  - Consensus on required mitigation/improvements necessary prior to site plan approval
  - Construction of improvements will be progressed by applicant and is required prior to issuance of CO

Case Study – The Natives Are Restless

- What happened:
  - Applicant secures site plan approval contingent on off-site mitigation
  - Applicant is unable to obtain responses from neighbors
  - Those that did respond were uncooperative
  - Project delays working through impasse – completely stalled
  - Applicant loses time and money

- What could have been done differently?
  - Town GEIS in place
  - Assess mitigation fees and Town progresses project
  - Escrow account for improvements
  - EDPL proceeding based on public benefit (not private)

Case Study – You Scream, I Scream…

- Background:
  - Applicant has store located at corner of four-way intersection seeking approval for on-site revisions
  - Two parcel entrances
  - Neighbor is a rival business
  - Municipality is concerned with turning conflicts close to the intersection and wishes to combine neighboring driveways on main road into one shared driveway (access management)

Case Study – You Scream, I Scream…

Image Source: Google Earth

Case Study – You Scream, I Scream…

- What happened:
  - Neighbor not in favor of agreement, no benefit to him
    - » Aiding his competition
    - » Liability regarding cut-through traffic
    - » Increased traffic on his site
- What could have been done differently?
  - Require cross-easements and access management during pre-planning
  - Add cross-easements to current parcel

Case Study – Roundabout Way

- Background:
  - Town completes Linkage study along State Route
    - » Identifies multiple intersection improvements needed (roundabouts)
  - Town implements GEIS
  - Development approved along Town Road
    - » Traffic impact identified at Town/State intersection
    - » Traffic signal/turn lane or roundabout impacts multiple parcels
  - Applicant agrees to pay mitigation fees to Town

Case Study – Roundabout Way

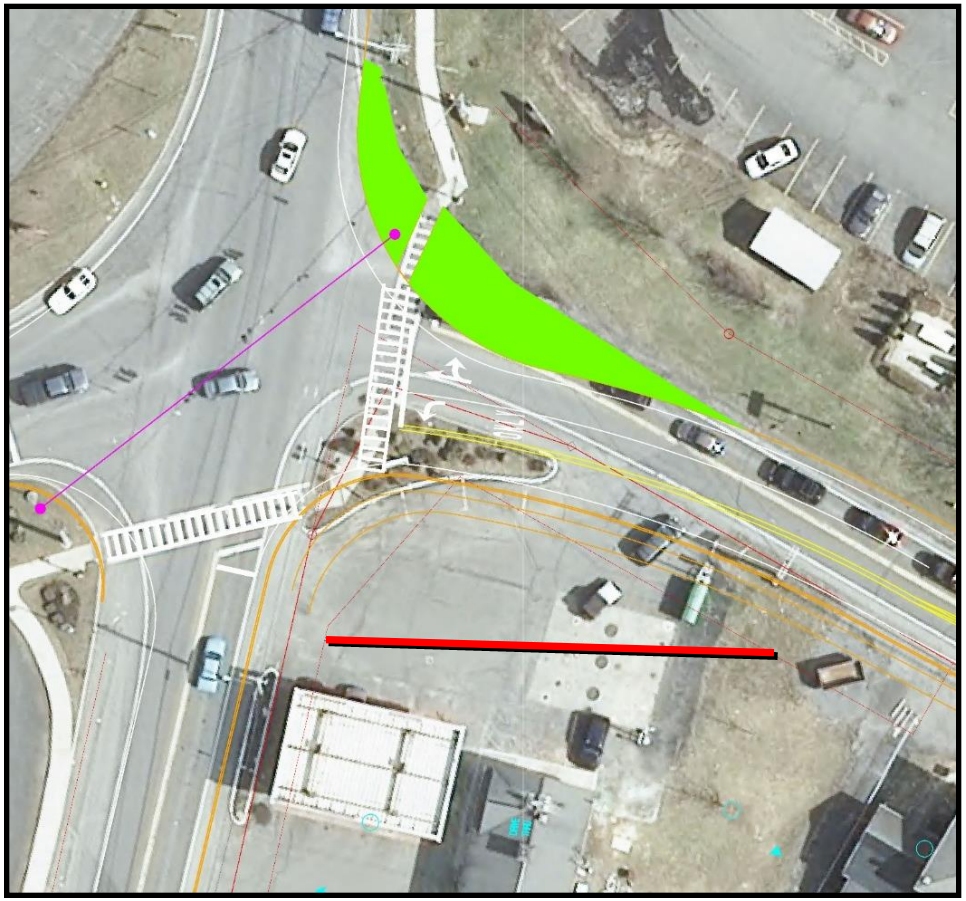
- What happened:
  - Town applies for and receives federal transportation funding
  - Town progresses roundabout using Federal, State, Town monies; moves through federal process
  - Federal-Aid process used to obtain Right-of-way
    - » Pro: Low risk, condemnation available to acquire
    - » Con: Much, much longer process
  - Outcome: All right-of-way acquired for fair market value (not inflated values)
  - Added value by combining funding to meet community vision

Case Study – Snowball Effect

- Background:
  - Town completes corridor study identifying improvements
    - » Turn Lanes and intersection widening
  - Numerous “small” developments approved in the area – not significant traffic generators on their own
  - Traffic operations at intersection continue to degrade
  - Applicant proposes to redevelop corner with a pharmacy

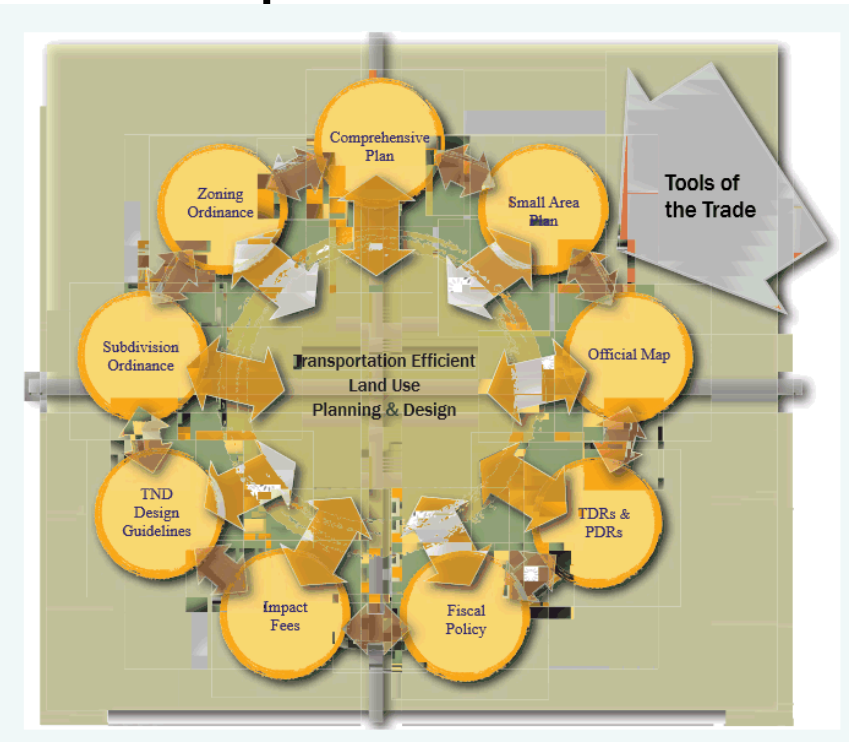
Case Study – Snowball Effect

- What happened:
  - Town requests concept level intersection improvement options as part of site plan review
  - Applicant required to donate portion of site to accommodate future turn lanes



Summary

- Think multi-modal
- Link land use and transportation decisions
- Achieve bike / ped / transit connectivity
- Use your tool box to achieve the plan
  - Complete Streets
  - Traffic Studies and GEIS's
  - Zoning
  - Access Management



Questions?