Route 9 MetroWest Smart Growth Plan

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5/20/13

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METROPOLITAN AREA PLANNING COUNCIL

Funded by HUD Sustainable Communities

Route 9 MetroWest Smart Growth Plan

Agenda

- Introduction / Meeting Objective
- Prior Study Conclusions (Corridor Analysis – Buildout Study)
- Smart Growth Concepts / Examples
- Corridor Overview Issues and Opportunities (Review)
- Smart Growth Opportunity Areas: Presentation and Discussion
  - Fayville Village, Southborough
  - Framingham Centre
  - Golden Triangle, Framingham and Natick
- Traffic Analysis and Issues relating to 3 Study Areas (SGOA's)
- Design Guidelines/Recommendations and Discussion
- Implementation Strategies and Phasing
- Next Steps

Route 9 MetroWest Smart Growth Plan

Review of 2010 Corridor Analysis (Build-out Study)

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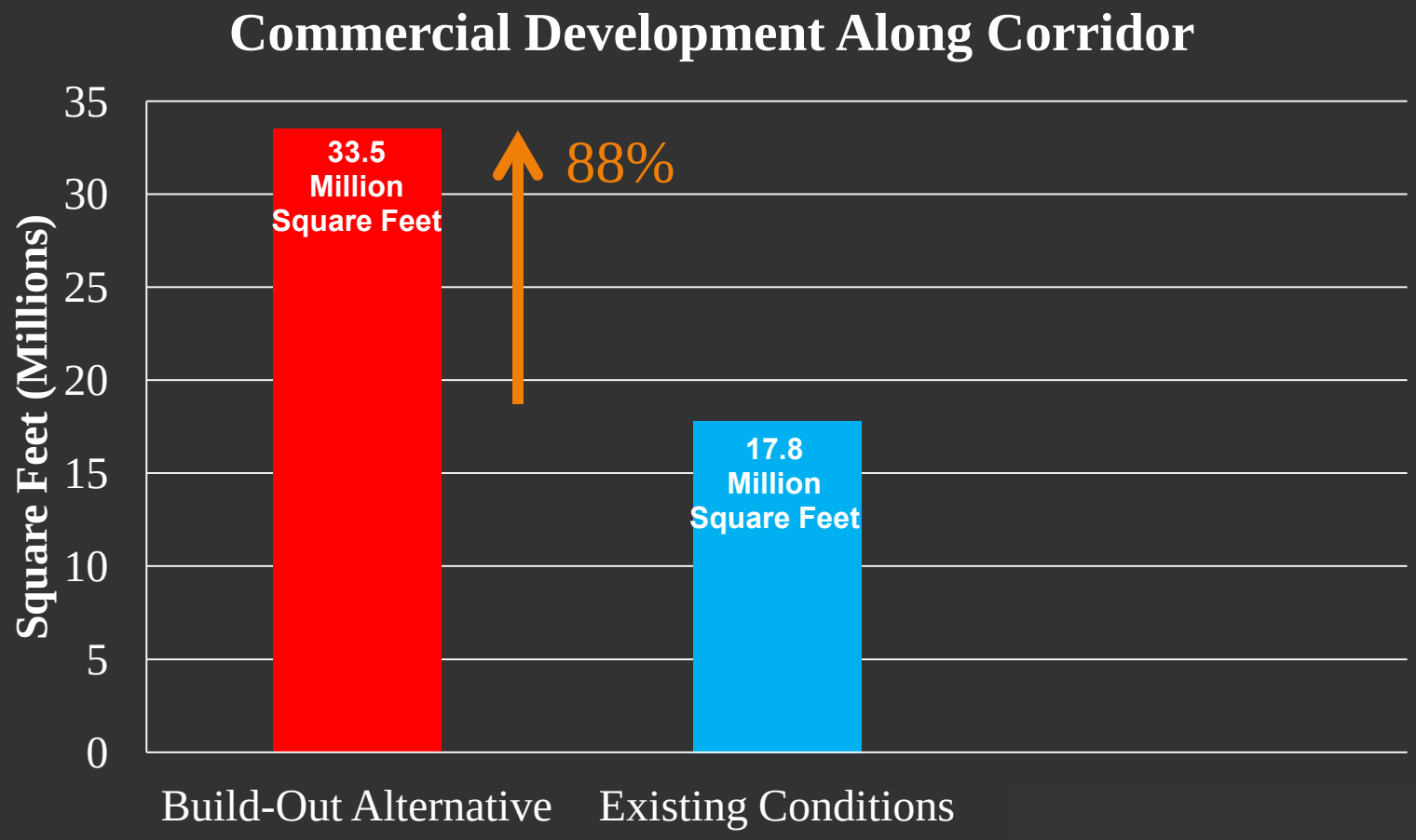
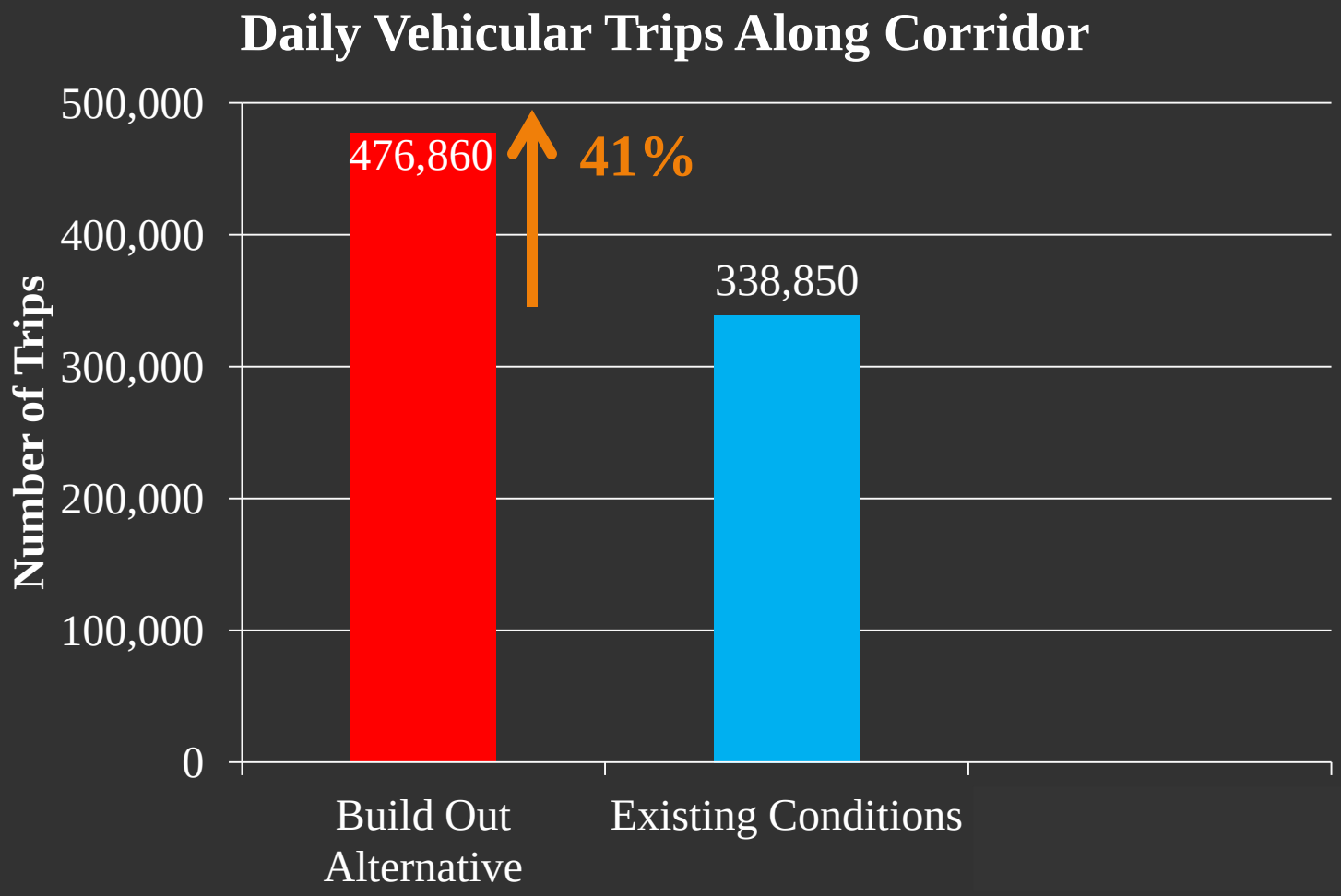
Review of Route 9 Corridor Analysis



Review of Route 9 Corridor Analysis



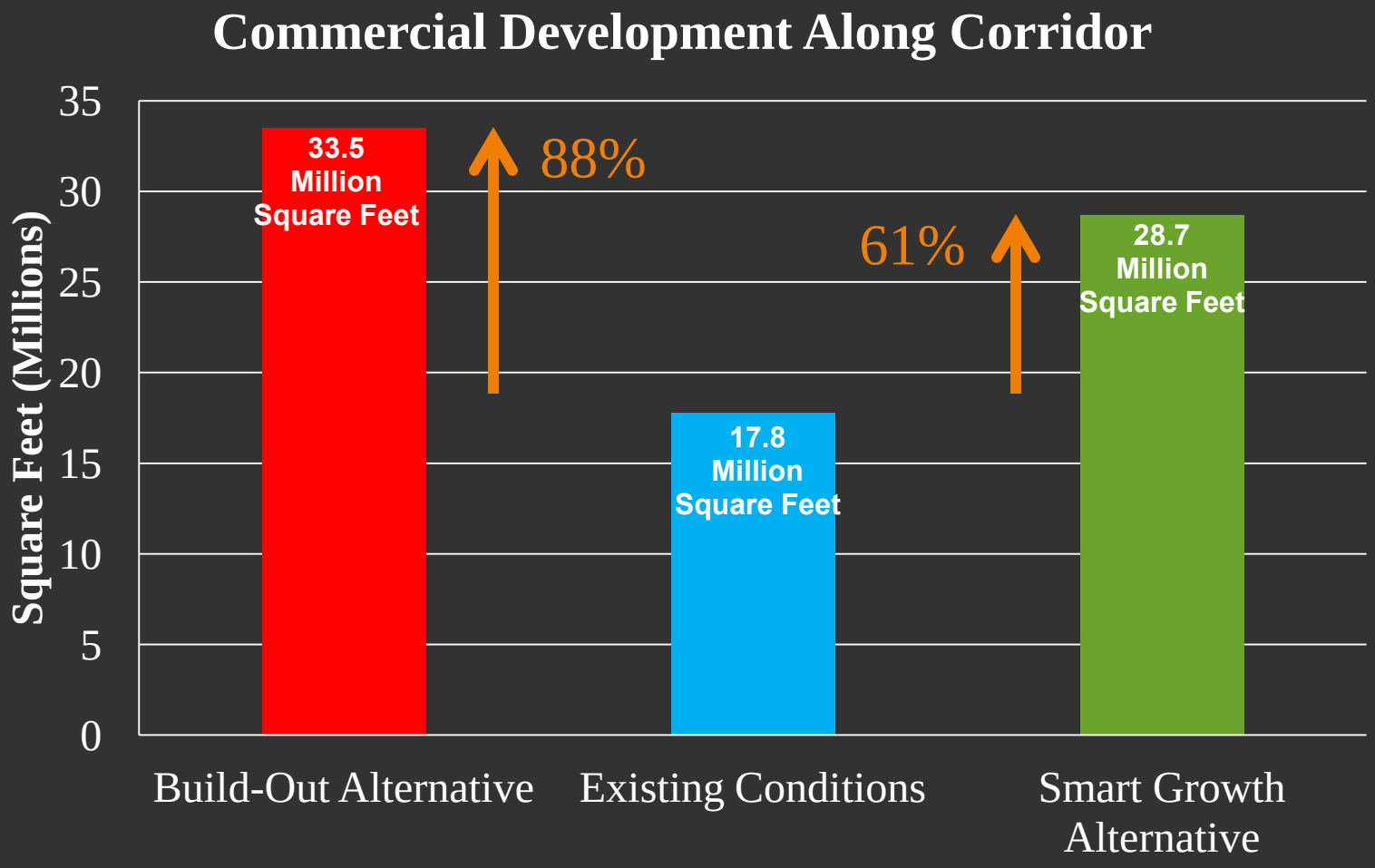
Review of Route 9 Corridor Analysis

Corridor Analysis Recommendations

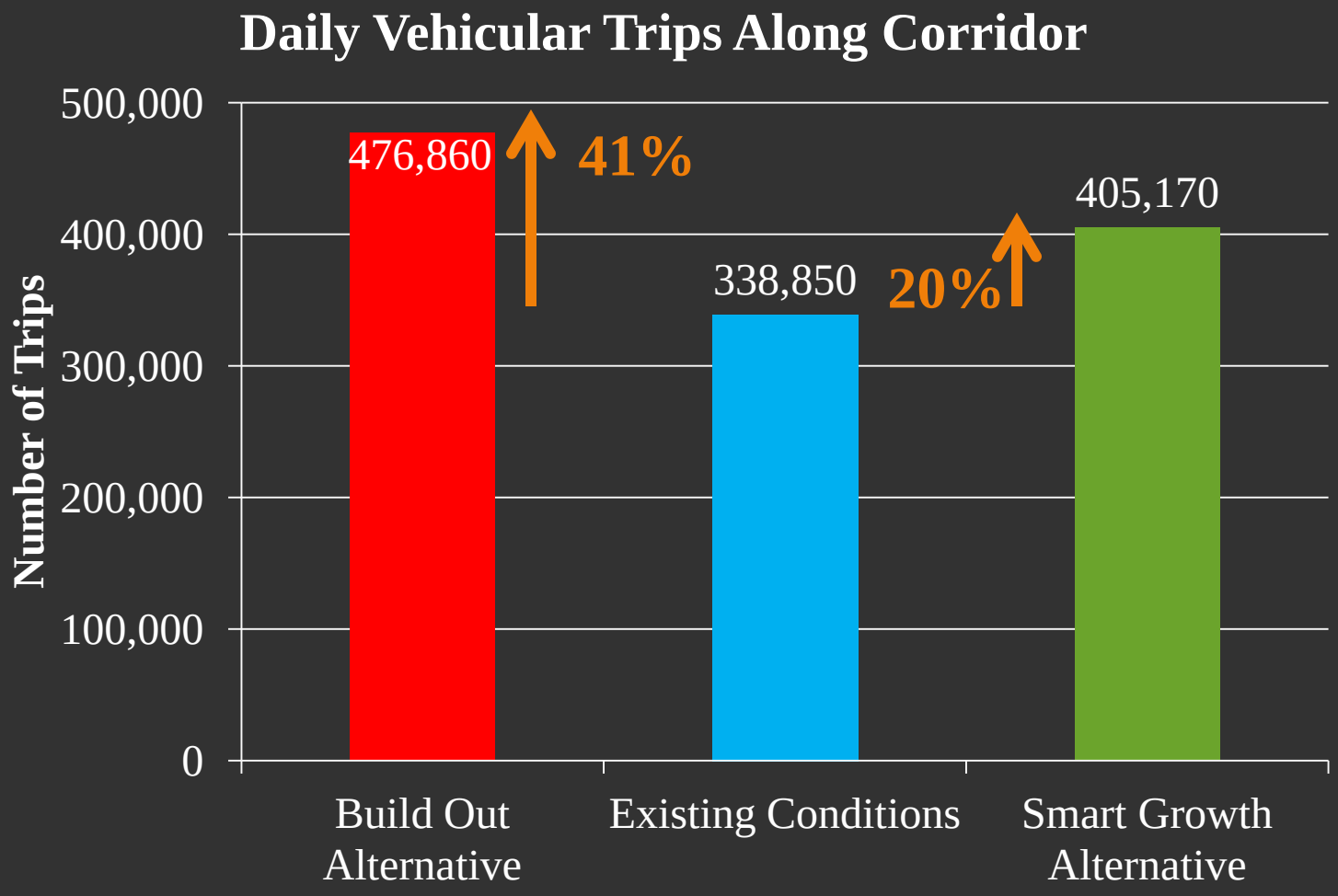
To allow growth and minimize traffic impacts, future development should include the following 'Smart Growth' elements:

- **Mix of land uses**
- **Design to promote walking, bicycling and transit.**
- **Improving connectivity between parcels.**

Review of Route 9 Corridor Analysis



Review of Route 9 Corridor Analysis



Route 9 MetroWest Smart Growth Plan

Principles of Smart Growth

- Compact, walk-able developments. "Placemaking"
- Mix of Land Uses
- Buildings closer to road, parking behind, preferably garages
- Buildings at least 2 stories to create "outdoor rooms"

Randall Arendt

Centre City, Houston

Route 9 MetroWest Smart Growth Plan

Principles of Smart Growth

- Pedestrian and bicycle friendly streetscape (Complete Streets)
  - Sidewalks set back from road as appropriate
  - Minimize crossing distances
  - Medians
  - Highly visible crosswalks
  - Minimize turning radii to slow traffic
  - Trees, plantings, amenities

Route 9 MetroWest Smart Growth Plan

Principles of Smart Growth

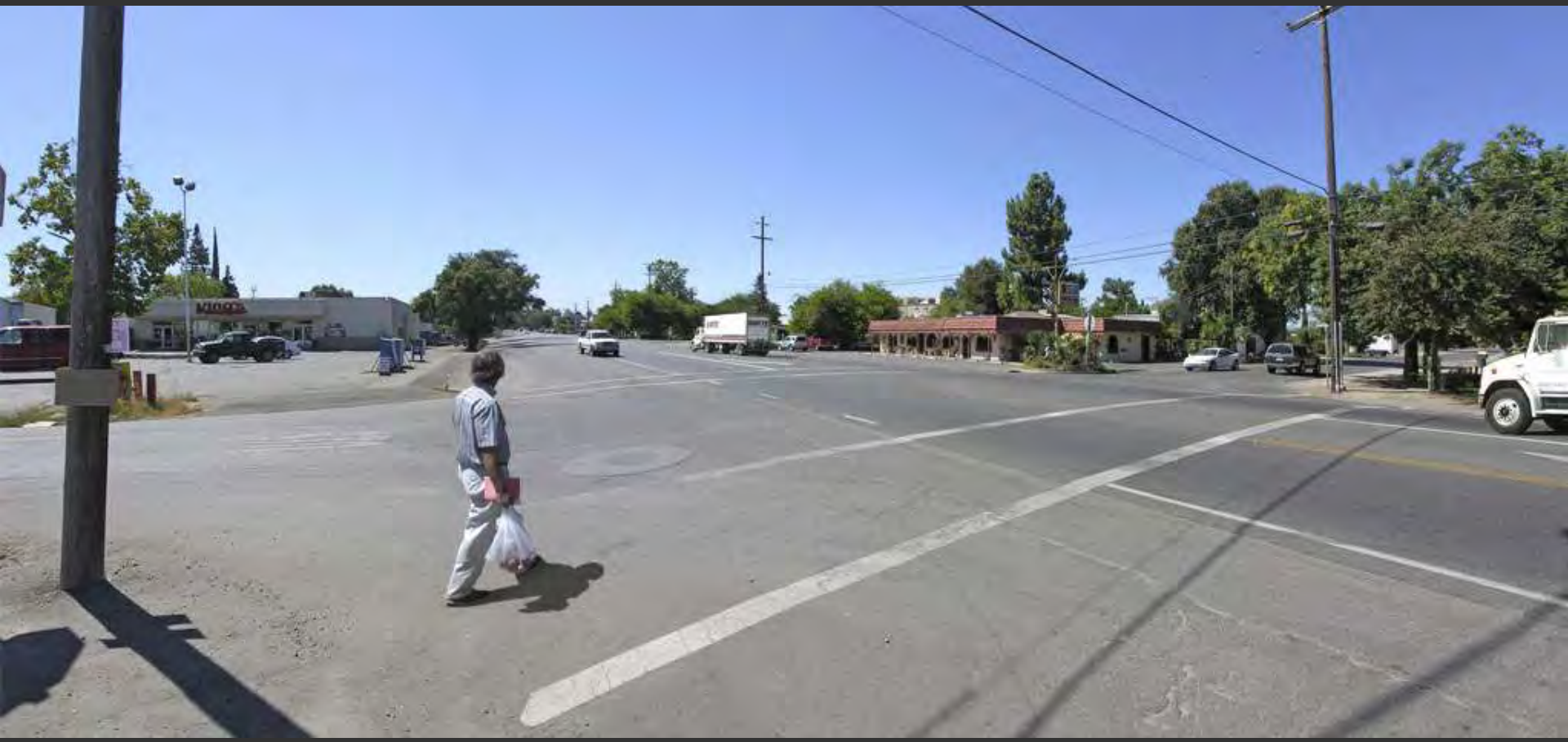
- Good public transit
- Parcel interconnectivity and / or grid of streets to minimize traffic concentration
- Natural storm-water management

Image Courtesy of Randall Arendt

Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Existing Condition: Live Oak Boulevard, Live Oak, CA
(Computer Visualizations by Urban Advantage)



Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Improved Streetscape: Crosswalks. Medians, Plantings

Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Taller Building Added

Route 9 MetroWest Smart Growth Plan

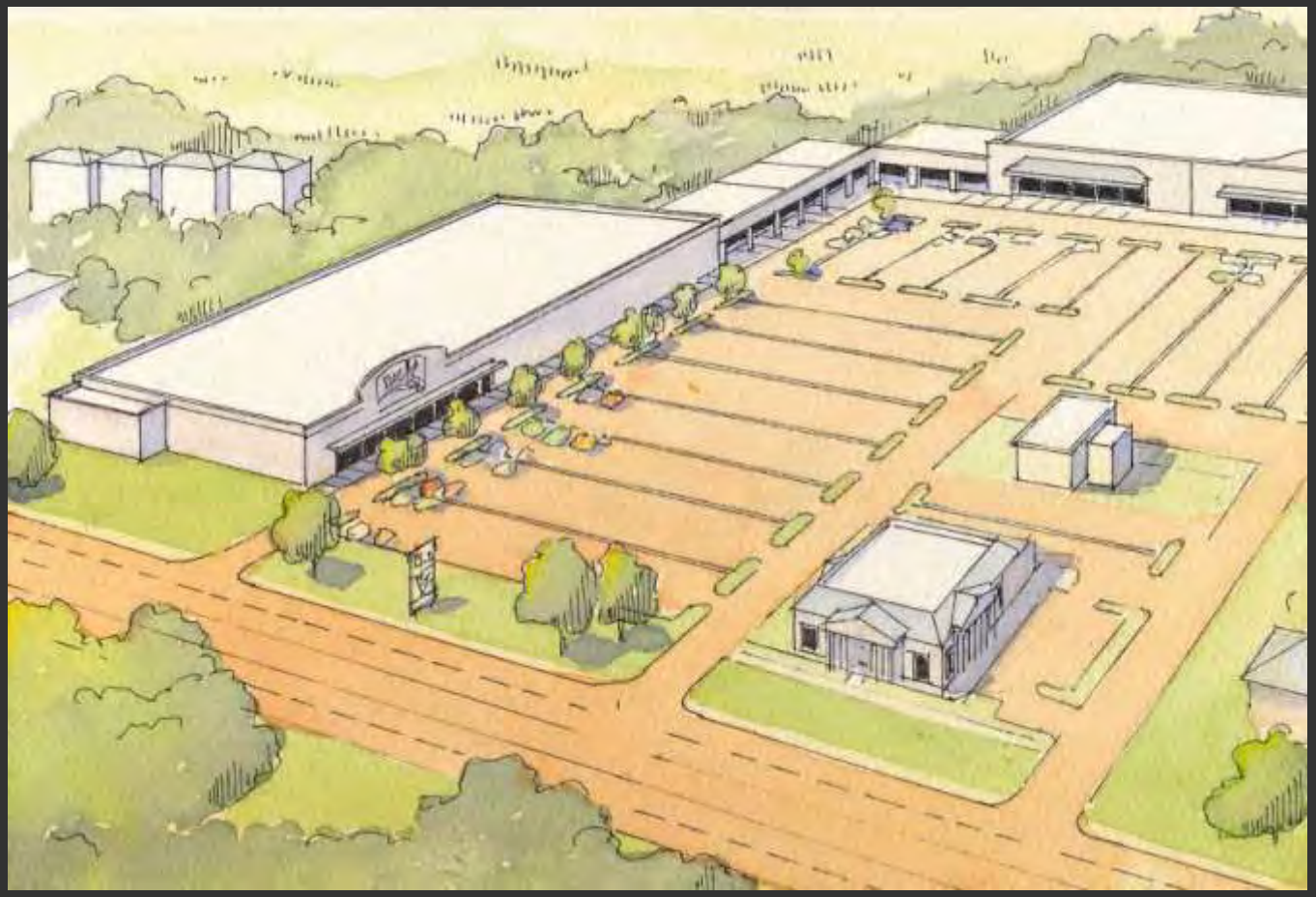
Concepts/Examples of Smart Growth

Infill Buildings at Corners, Close to Road, Parking Behind

Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Starting Condition: Shopping Center, Open Parking
(Computer Visualizations by Dover, Kohl & Partners)



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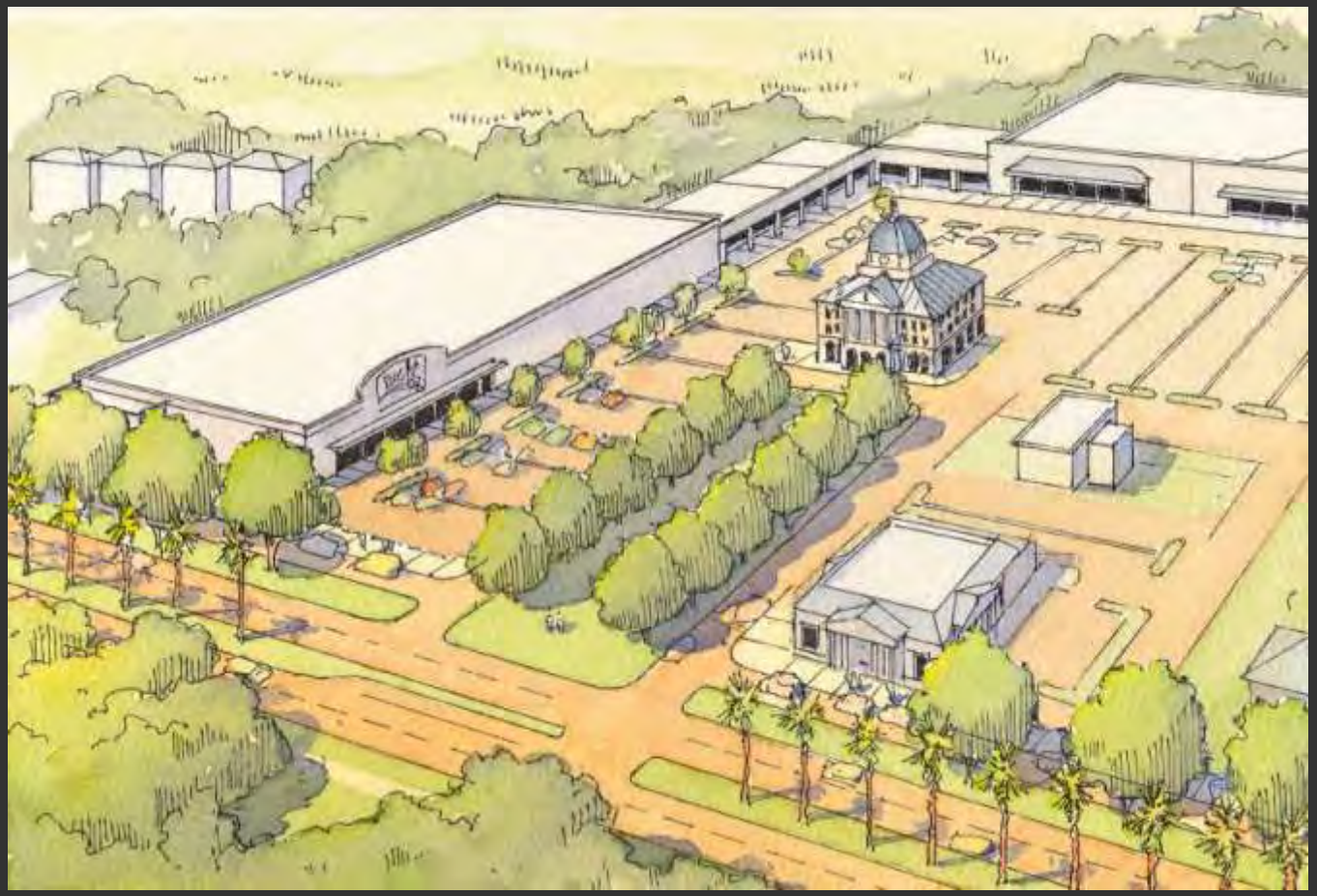
Concepts/Examples of Smart Growth

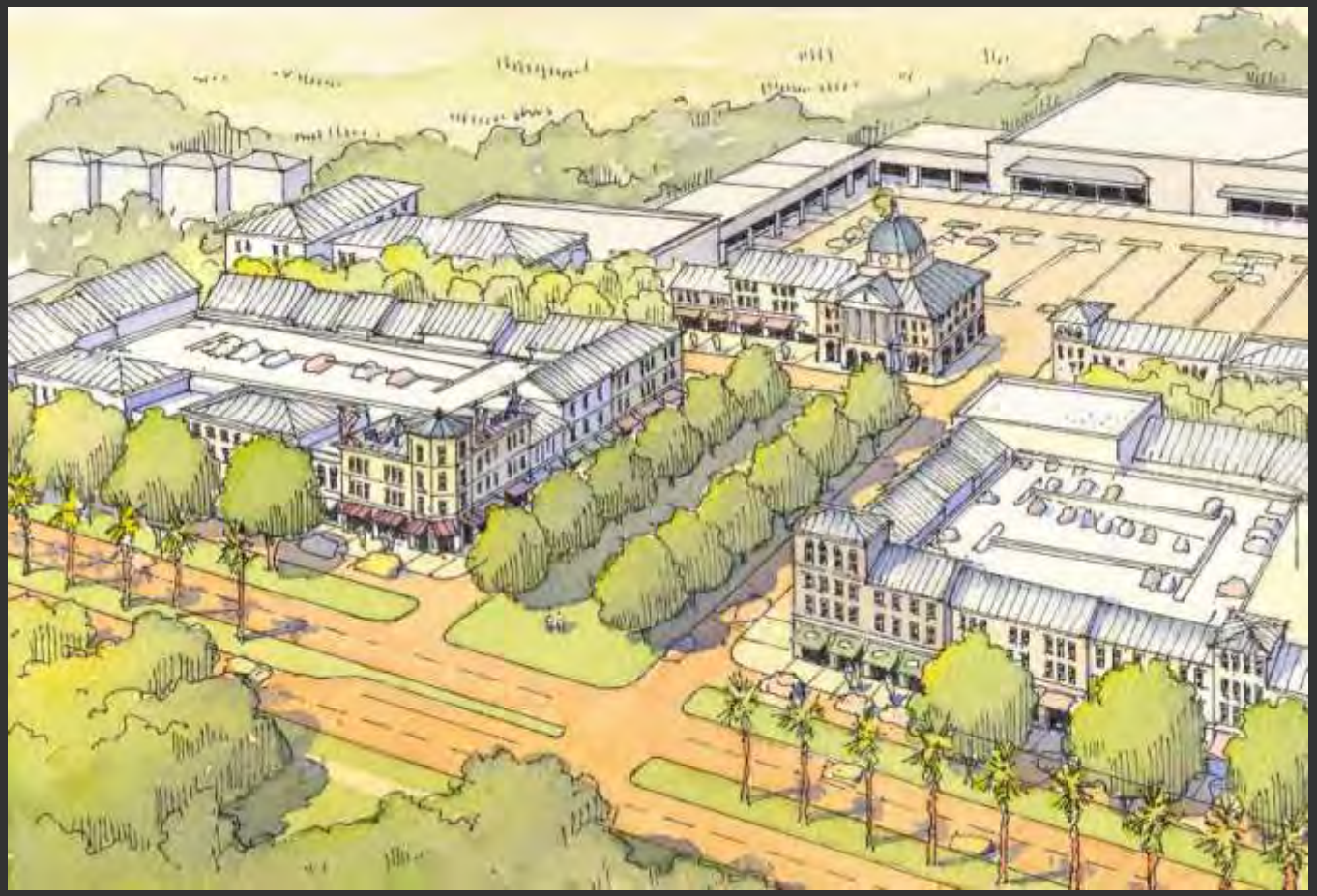
Boulevard Improvements, Infill Buildings, Green Space



Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Additional Buildings, Close to Road, Concealing Garages



Route 9 MetroWest Smart Growth Plan

Concepts/Examples of Smart Growth

Replace Old Shopping Center with New Buildings; Mixed Use; Add Street Grid; Most Parking in Garages.

Route 9 MetroWest Smart Growth Plan

Local Examples of Recent "Smart Growth"

Mashpee Commons
Mashpee, MA

- **Village but setback from access roads**

Duany, Plater-Zyberk

Randall Arendt

Route 9 MetroWest Smart Growth Plan

Local Examples of Recent "Smart Growth"

South County Commons, South Kingstown, RI

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Local Examples of Recent “Smart Growth”

Linden Street , Wellesley, MA

Route 9 MetroWest Smart Growth Plan

Local Examples of Recent "Smart Growth"

Legacy Place, Dedham, MA

- Lifestyle Center. Shops, Restaurants
- Some garage parking but open lots
- Improved version of Shoppers World
- Building crosses parking field

Route 9 MetroWest Smart Growth Plan

Local Examples of Recent “Smart Growth”

Legacy Place, Dedham, MA

- Many Pedestrian Friendly elements
- Apartments on Adjacent Site
- Development Does Not Engage Route 1

Route 9 MetroWest Smart Growth Plan

Local Examples of Existing "Smart Growth"

Chestnut Hill, MA (Route 9)

- Historic development patterns and new development
- Buildings close to road (slows traffic)
- On-street parking
- But poor pedestrian crossings

Route 9 MetroWest Smart Growth Plan

Local Examples of Existing "Smart Growth"

Chestnut Hill, MA (Route 9)

- **Service Roads in some stretches**
  - **Combines curb cuts**
  - **Provides area of refuge**
  - **Separates Through traffic from Local**
- **Multi-family housing recently built**

Route 9 MetroWest Smart Growth Plan

Benefits of Smart Growth

- Economic growth (and tax revenue) without gridlock.
- Access to job opportunities
- Healthy lifestyle: walking, biking
- Housing availability
- Pedestrian safety

Route 9 MetroWest Smart Growth Plan

Benefits of Smart Growth

- Sense of Place / Community (Social interaction)
- Meets new market demands (appeals to Baby Boomers and young workers)

Randall Arendt

Route 9 MetroWest Smart Growth Plan

Benefits of Smart Growth

- **Environmental benefits:**

  - **Reduced dependence on fossil fuels**
  - **Saves open space, farmland (Less Sprawl)**
  - **Reduced pollution. Fewer vehicle miles**
  - **Improved visual quality**

Route 9 MetroWest Smart Growth Plan

Corridor Issues and Opportunities

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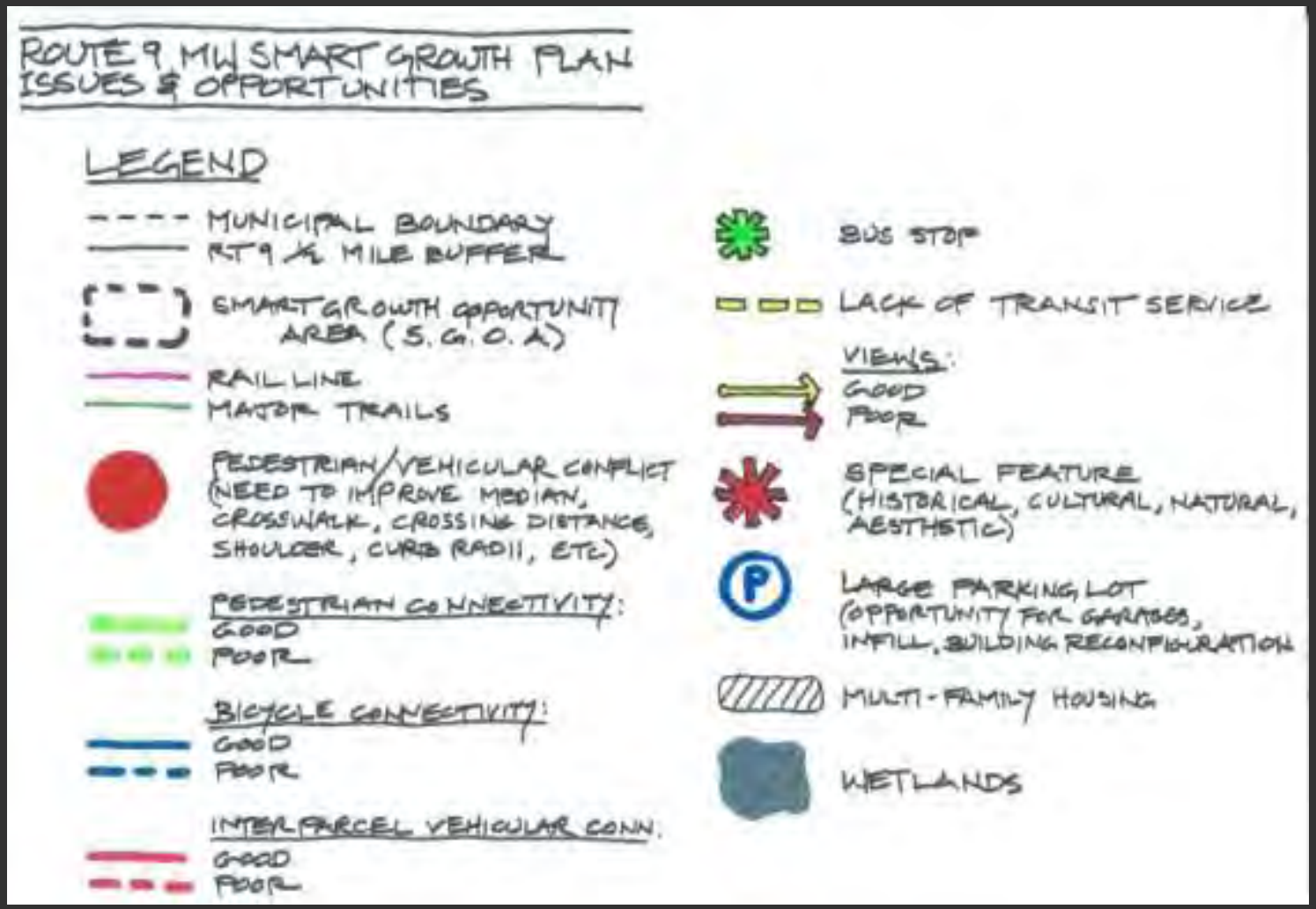
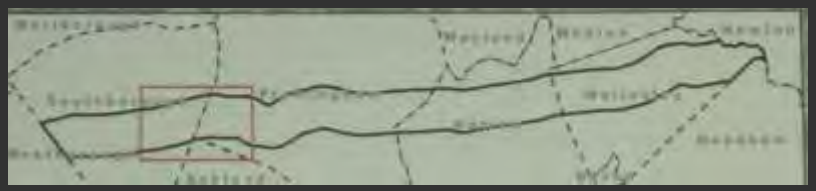
Issues and Opportunities



Route 9 MetroWest Smart Growth Plan

Issues and Opportunities



Potential S.G.O.A.

White's Corner - Southborough

- Existing Shops and Restaurants
- Adjacent Office Development
- Views to Reservoir

Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Framingham
9/90 – Tech Park Area

- Potential support businesses
- Highway commercial landscape
- Vacant properties / park and ride lot
- Challenging Pedestrian Environment

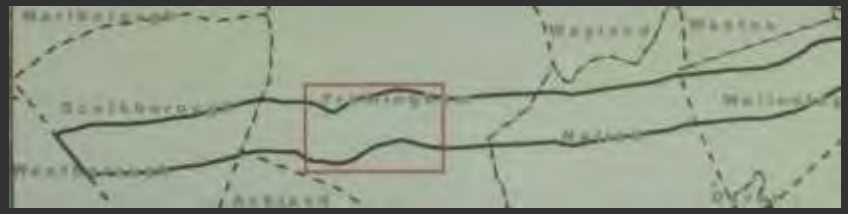
Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Potential S.G.O.A.

Temple Street – Framingham

- Existing commercial
- Existing multifamily housing
- Some Historic Buildings; Stone walls
- Challenging Pedestrian Environment
- Buildings set back; parking in front
- Minimal Landscaping



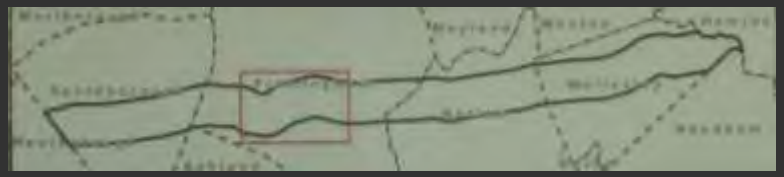
Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Potential S.G.O.A

Prospect Street – Framingham

- Existing multi-family housing
- Significant commercial activity
- Challenging Pedestrian Environment

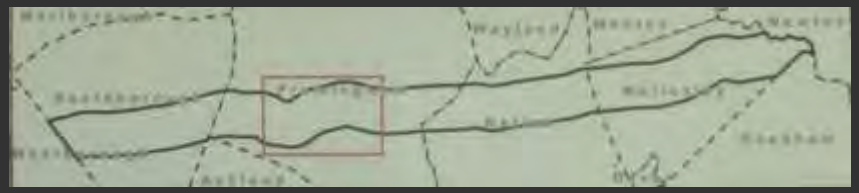


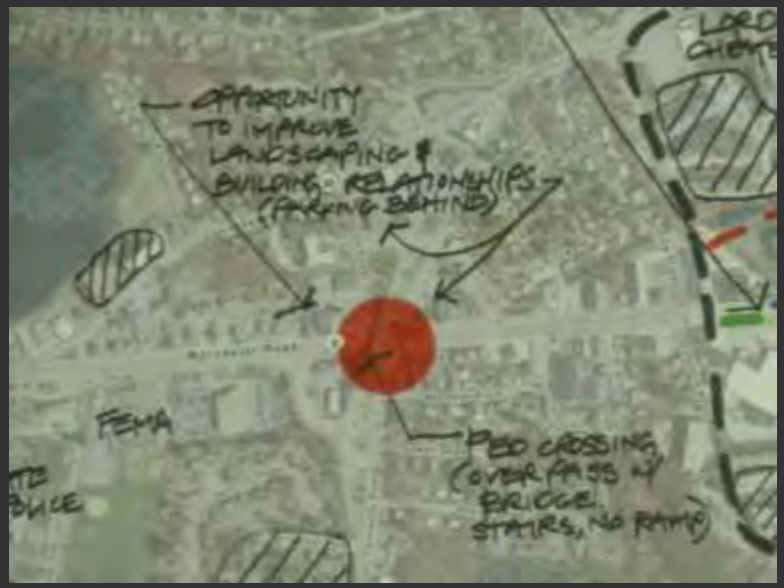
Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Route 126 – Framingham

- Small scale businesses
- Some vacancies
- Possible redevelopment
- Bridge and ramps complicate connectivity across Rt 9



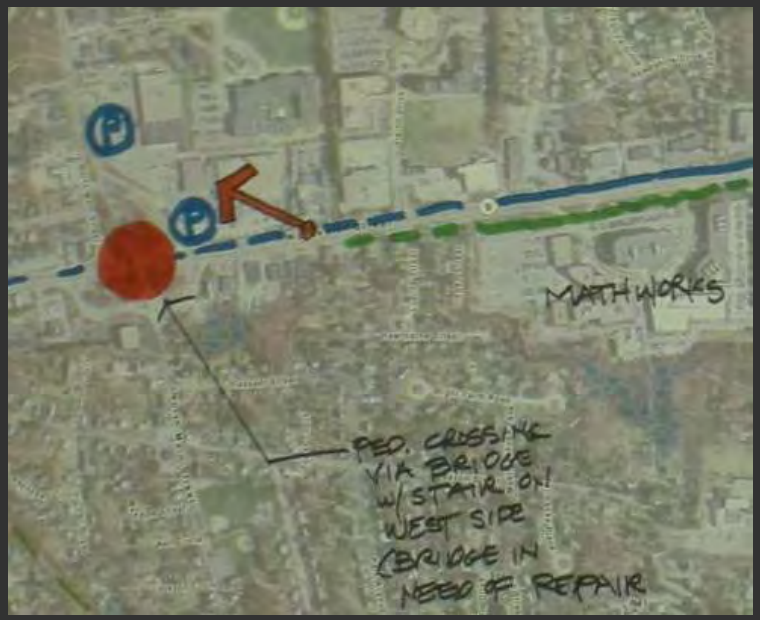


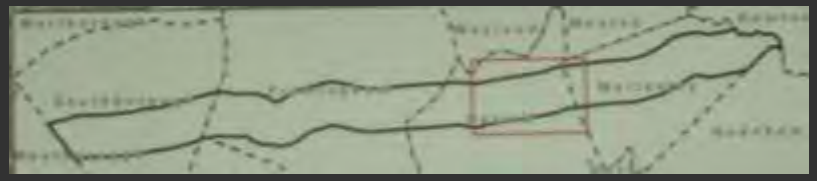
Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Route 27 – Natick

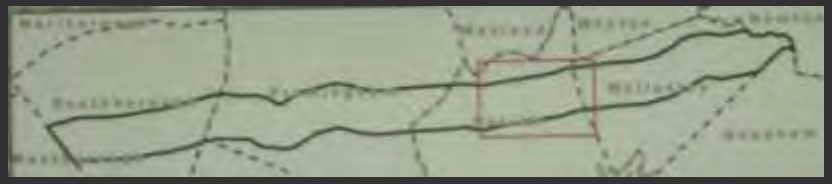
- Large commercial / office area
- Poor pedestrian connections
- Bridge and ramps complicate connectivity across Rt 9





Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

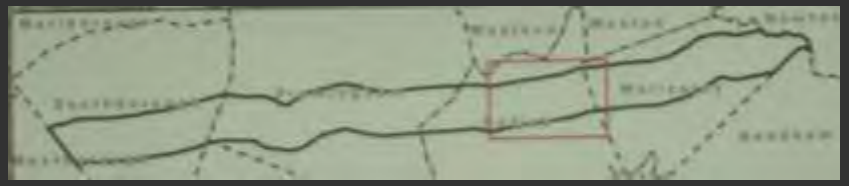


Oak Street - Natick

- Small Scale Parcels
- Pedestrian Unfriendly
- Current intersection design plans

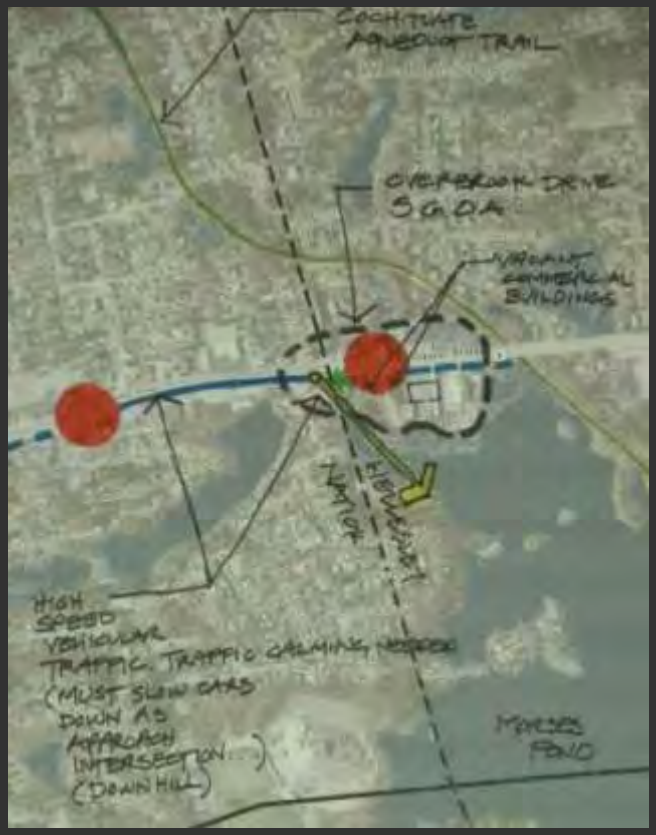
Route 9 MetroWest Smart Growth Plan

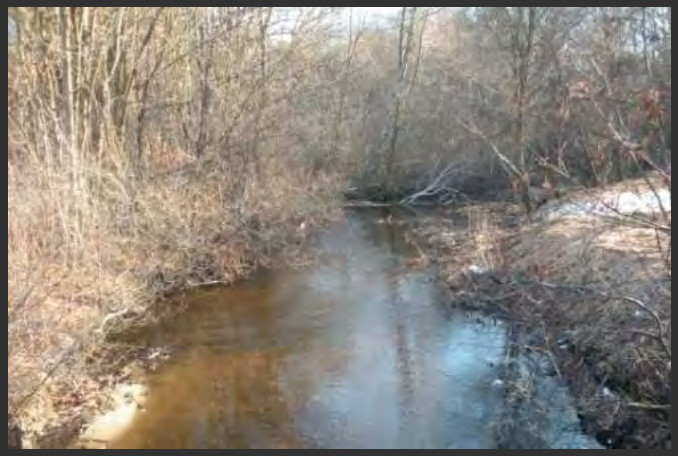
Issues and Opportunities



Potential S.G.O.A.

Overbrook Drive - Wellesley





Route 9 MetroWest Smart Growth Plan

Issues and Opportunities

Potential S.G.O.A.

Overbrook Drive – Wellesley

- Vacant parcels and buildings (Some current plans)
- Mixed-use opportunity
- Buildings should be closer to road with rear parking
- Challenging Pedestrian Environment
- Must calm traffic
- Green space adjacent to intersection
- Enhance landscaping buffers

Route 9 MetroWest Smart Growth Plan

Selected Smart Growth Opportunity Areas (SGOAS)

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Route 9 MetroWest Smart Growth Plan

Fayville Smart Growth Opportunity Area (SGOA)

Existing Conditions

Route 9 MetroWest Smart Growth Plan

Fayville SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Fayville SGOA

Existing Conditions Photos

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Existing Conditions Photos

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Fayville SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Fayville SGOA

Proposed Conceptual Plan

Worcester

Boston

- Create Village Feel
- Buildings closer to Road
- Parking Behind
- Improve Streetscape
- Traffic Calming

Route 9 MetroWest Smart Growth Plan

Fayville SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Fayville SGOA

Proposed Concept Visualization

Route 9 Looking West at Oak Hill Road

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Existing Conditions

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

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Framingham Centre SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Historic Photo 1875

This is Framingham Centre as it appeared in 1875, approaching from the east along Eastern Avenue, now Worcester Road. The buildings, tree, and water trough in the left foreground would make way for the construction of Route 9 in the 1930s. (*Framingham Illustrated*, 1880.)

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Conceptual Enlarged Plan Village Commercial Area

- Reorganize Excessive Paving
- Infill Buildings / Recreate Village
- Improve Overpass Connections

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Visualization – Existing Conditions

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Existing Condition View

Route 9 MetroWest Smart Growth Plan

Framingham Centre SGOA

Proposed Concept Visualization

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions

West

East

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions Photos

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Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions Photos

Route 9 MetroWest Smart Growth Plan

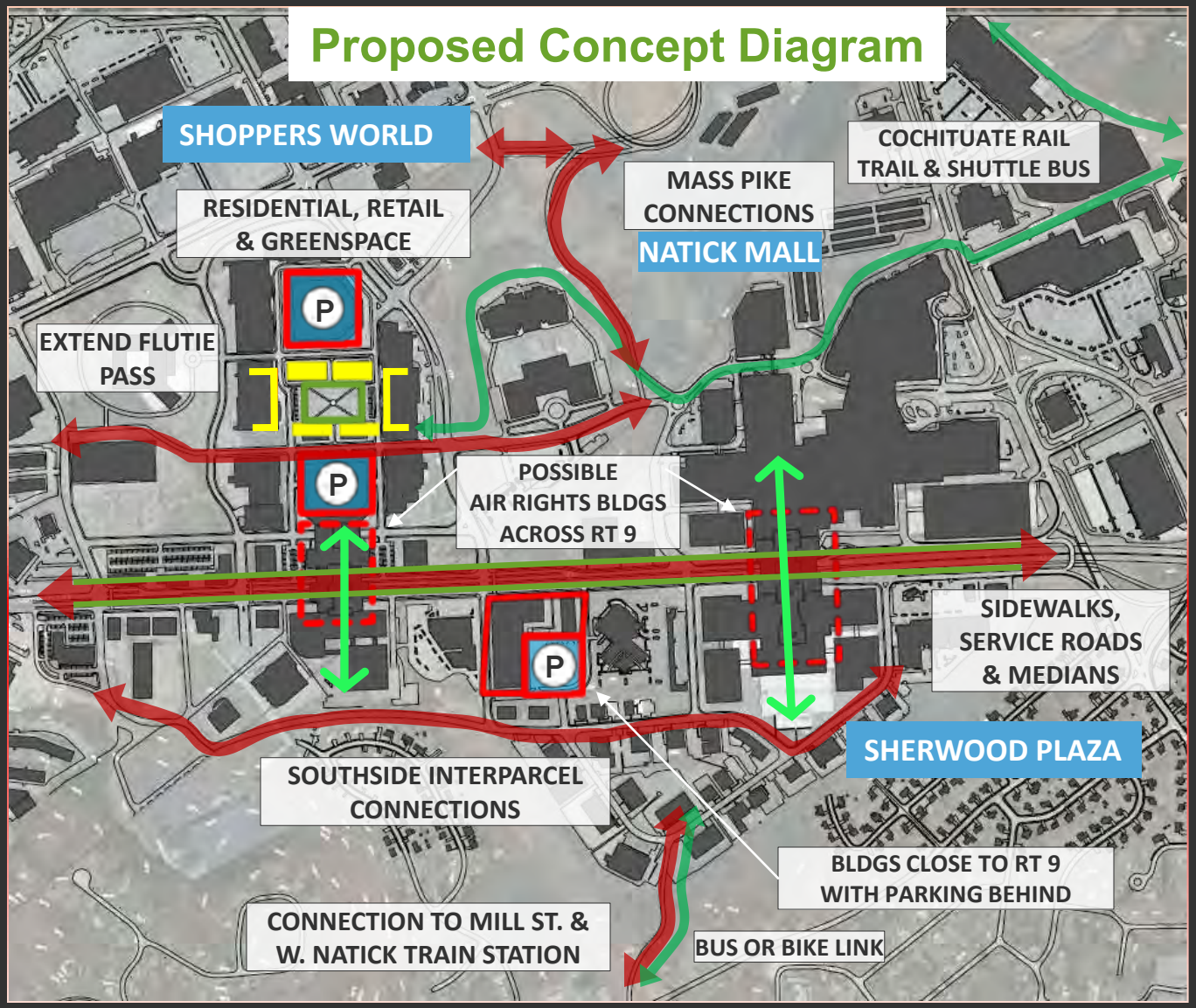
Golden Triangle SGOA

Existing Conditions

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA: Existing Conditions

Route 9 MetroWest Smart Growth Plan



Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Enlarged Concept Plan – Framingham Shoppers World Area

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Enlarged Concept Plan - Natick Mall and Sherwood Plaza

Route 9 MetroWest Smart Growth Plan

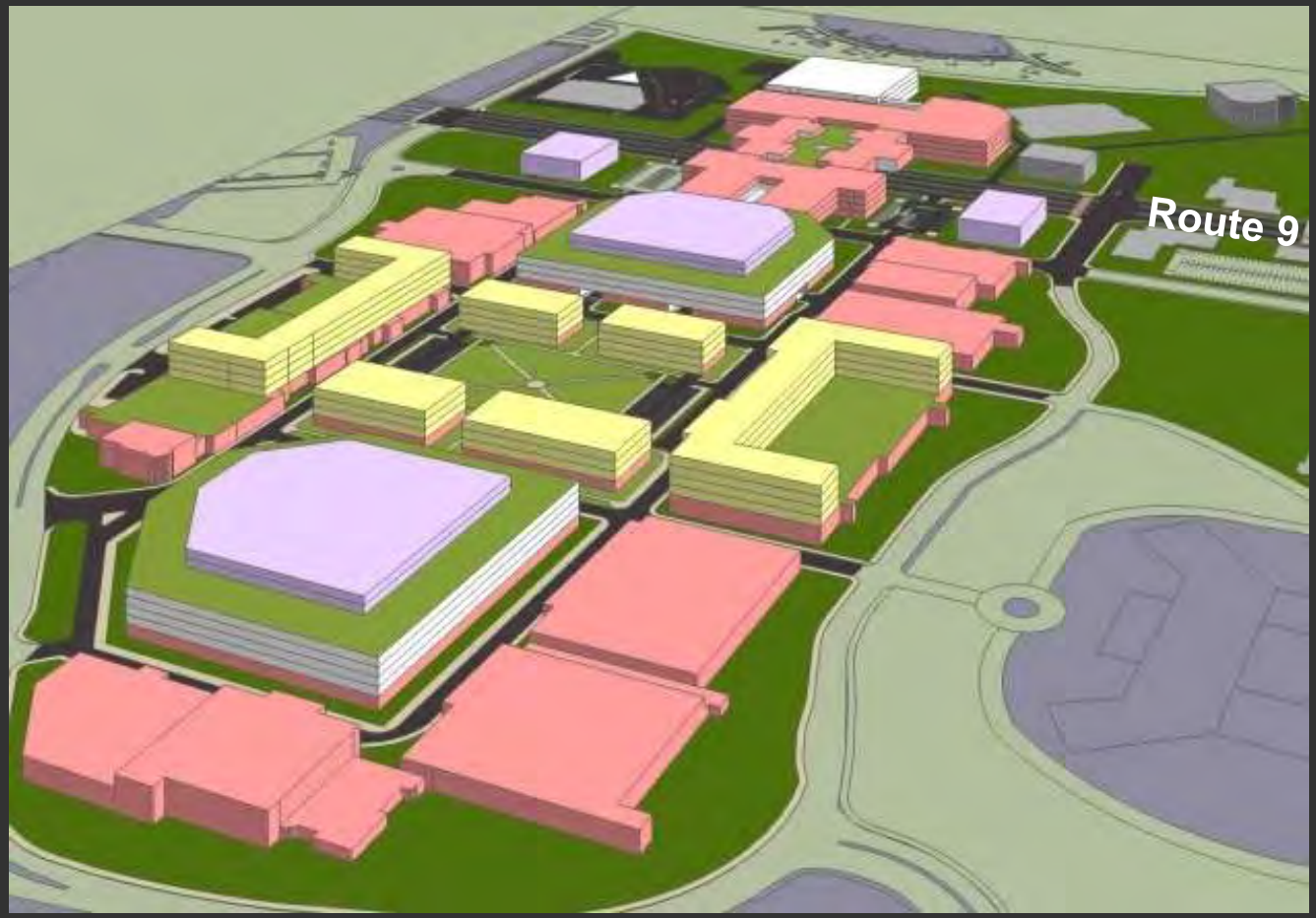
Golden Triangle SGOA

Proposed Concept Visualization – Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

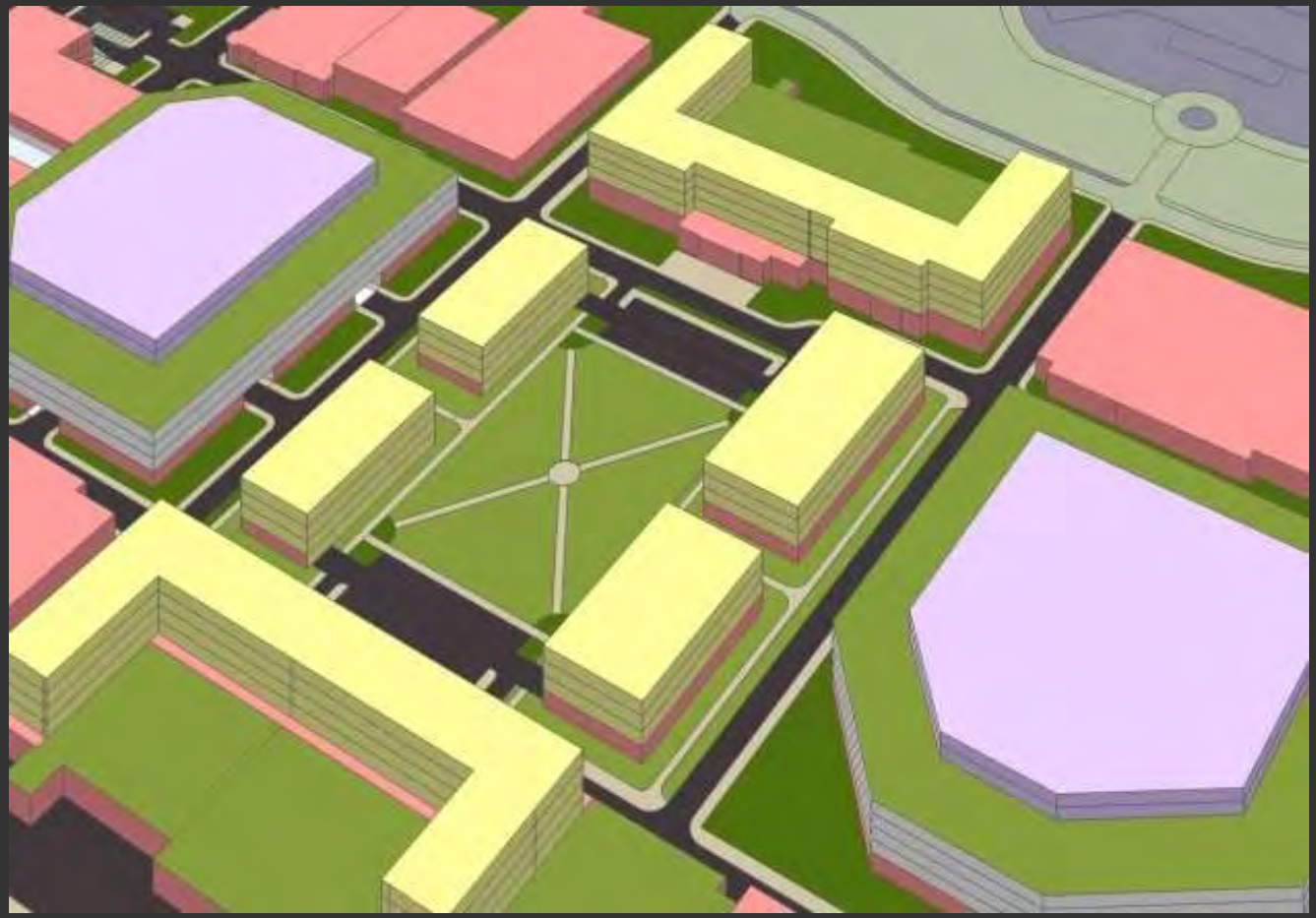
Proposed Concept Visualization – Shoppers World



Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Concept Visualization – Shoppers World



Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Concept Visualization – Air Rights At Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions – Starbucks at Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Concept Visualization – Starbucks At Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Existing Conditions - Parking Lot At Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Proposed Concept Visualization – Town Green At Shoppers World

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Old Shoppers World. Internal Community Greenspace

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Images of what the Golden Triangle could be like ……

Zona Rosa, KC, MO
Photo Courtesy Of Randall Arendt

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Images of what the Golden Triangle could be like ……

Centre City, Houston

Route 9 MetroWest Smart Growth Plan

Golden Triangle SGOA

Images of what the Golden Triangle could be like ……

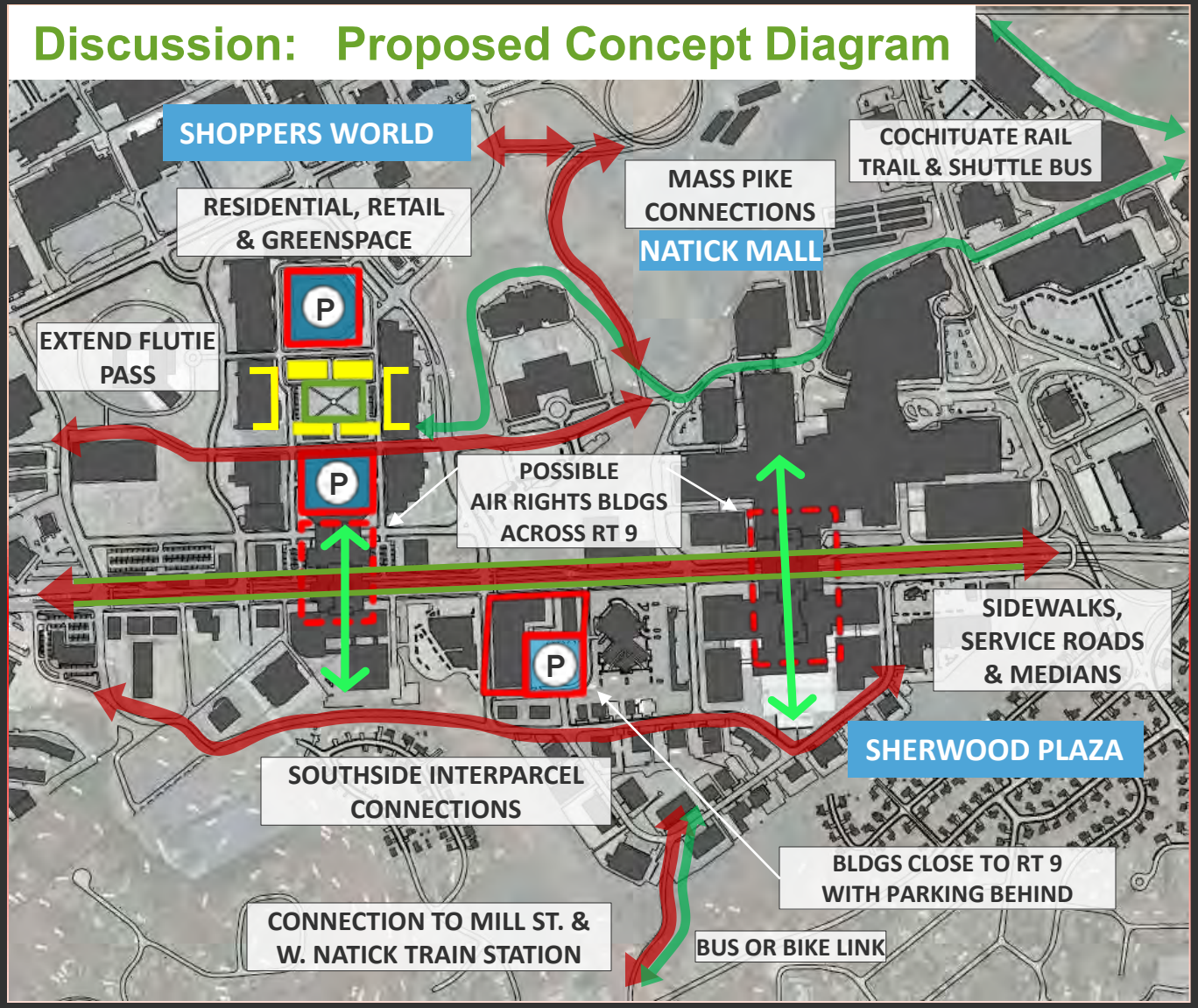
Centre City, Houston

Route 9 MetroWest Smart Growth Plan

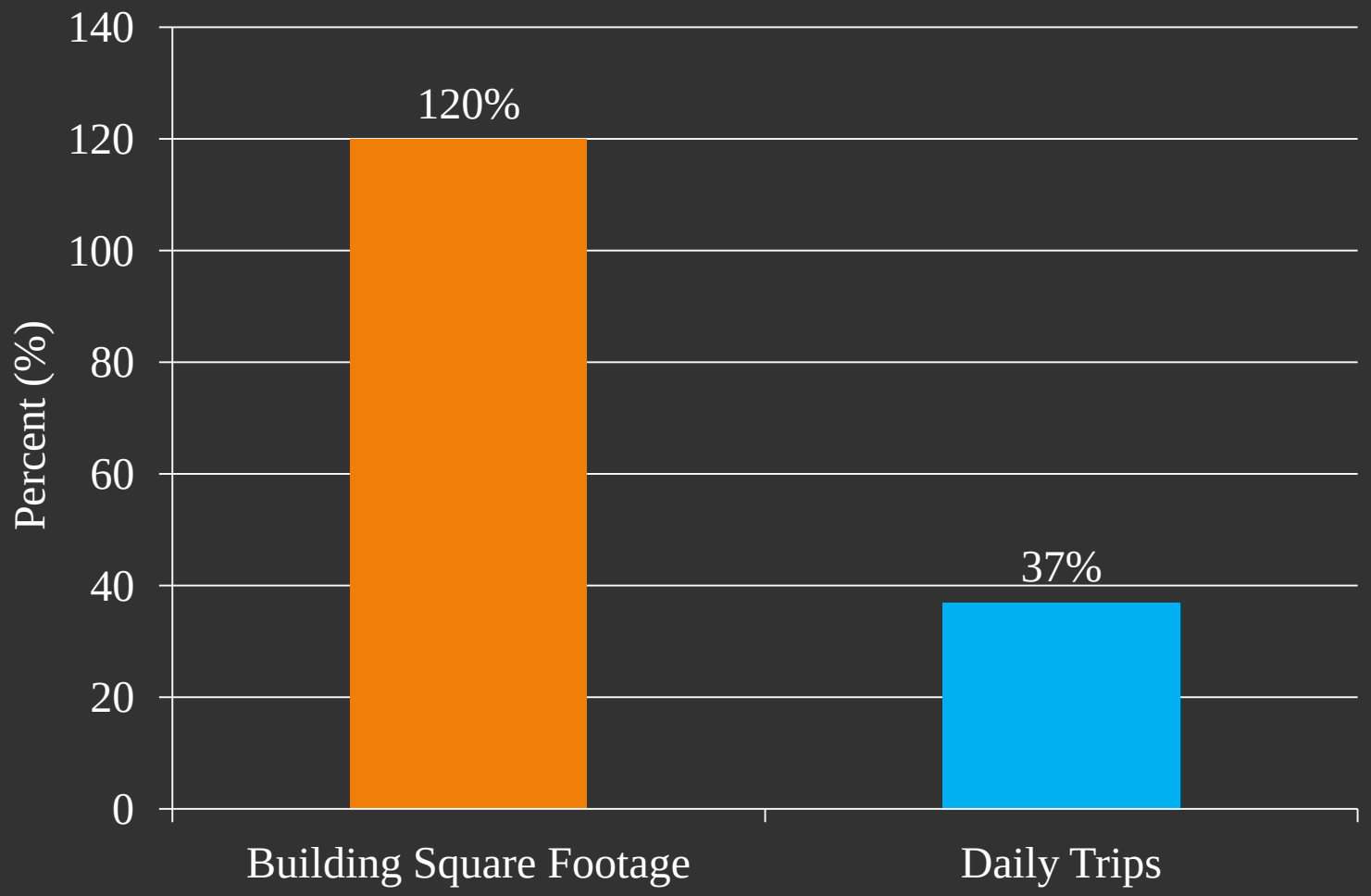
Golden Triangle SGOA

Images of what the Golden Triangle could be like ……

Route 9 MetroWest Smart Growth Plan



Review of Route 9 Corridor Analysis



Route 9 MetroWest Smart Growth Plan

Factors that Mitigate Vehicular Trips:

Internal (within the Golden Triangle)

- Mixed Use and Proximate Developments
- Improved Pedestrian Connections
- Parcel Interconnectivity

External (to and from the Golden Triangle)

- Enhanced Bus Service
- Improved Commuter Rail Connection
- Bicycle Lanes and Pedestrian Access

Route 9 MetroWest Smart Growth Plan

Traffic Analysis and Impact Mitigation:

Factors That Would Help Mitigate Traffic along Route 9

- Mixed Use Developments (more internal pedestrian trips)
- Reduced Density between Smart Growth Developments
- Improved Pedestrian Connections along and across Route 9
- Parcel Interconnectivity/Street Grid/ Flutie Pass Extension and Similar Road on Southside (more choices, fewer bottlenecks)
- Service Road and Medians to Separate Thru and Local Traffic
- Enhanced Bus Service
- “Capture Rates” and “By-Pass Trips”
- Connections to MassPike and Pike as By-Pass (Free Betw/Exits 12-13)
- Connection to Mill St. and W. Natick Train Station
- Traffic increases not all on Route 9 (Rt 30, MassPike etc)

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Design Guidelines/Recommendations For 3 Smart Growth Opportunity Areas (SGOA's)

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion
Fayville SGOA

Route 9 Looking West at Oak Hill Road

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations
Fayville SGOA

Pedestrian Scale Lighting

New Buildings Close to Road/ Parking Behind

Gathering Spaces

Narrow Travel Lanes (10-11 ft) (plus shoulders)

General: Visual Cues to Slow Traffic

Crosswalks – Highly-Visible / Ped. Signals

Planted Medians for Refuge (6-10 ft wide)

Adaptive Reuse and Infill Buildings

Tree Planting Strip If possible (6-10 ft wide)

Sidewalk/Multi-use Path (10 ft wide. 6 ft min)

Landscaped Area/ Stormwater Treatment (10-20 ft wide)

Route 9 Looking West at Oak Hill Road

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Framingham Centre SGOA

New Row of Buildings in Reclaimed Excess Pavement

New Pedestrian Overpass Across Route 9 and Onramp. Connects to 2nd Floor of New Building with Elevator.

Roadway and Parking Reconfiguration: Pleasant Street 2 Way with Parallel parking

Possible Low Parking Deck in Rear if needed.

Route 9 Looking West

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Framingham Centre SGOA

Shade Trees

Buildings close to road (2-3 Stories)

Pedestrian scale lighting & amenities

Unit paving on crosswalks and sidewalks

Pleasant Street 2 Way, 2 Lanes

Parallel parking

Speed tables at crossings

Neckdowns to shorten crossing distances

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Golden Triangle SGOA

Possible Air Rights Development Across Route 9

2 Through Lanes Each Direction

Planted Medians

Highly Visible Crosswalks with Pedestrian Signals

Reduced Curb Radii at Entries

New Buildings 2-6 Stories Typical, 40-50 ft setback From Curb with Parking Behind

Tree Planting Strip (6-10 ft)

Sidewalk 10-12 ft Wide. Set Back from Road

Landscaped Area/ Stormwater Treatment (10-20 ft wide)

Service Roads: Also Serve Buses & bikes. Bus Stops/Shelters

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations

Golden Triangle SGOA

Encourage Temporary Kiosks To Animate "Streetscape"

Shoppers World

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Golden Triangle SGOA

Proposed Residential Development Around Large Open Green Space

Gathering Spaces/Outdoor Cafes

Crosswalks with Unit Pavers for Durability and Visibility.

Possible Office or Residential Above Garage

Proposed Parking Structure 4-6 Story

Retail on First Floor

Gathering Spaces & Outdoor Cafes

Streetscape Amenities: Sidewalk Paving Accents or Feature Strips, Street Trees, Pedestrian Scale Lighting, Benches

Shoppers World

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

Golden Triangle SGOA

Football Field Sized Green Space with Bandstand, Trees, Lighting and other Amenities

Nominal amount of Surface parking

Proposed Residential Development Above Existing Stores 4 Stories

Proposed Freestanding Residential Development 4 Stories

Some Retail on First Floor of Residential Buildings

Shoppers World

Route 9 MetroWest Smart Growth Plan

Design Guidelines/Recommendations Discussion

General Design Guidelines for Smart Growth

Excerpts From
Checklist of Design Concepts for
Pedestrian and Bicycle Friendly Environments
by MWRC

General Development – Pedestrian – Bicycle – Transit – Traffic Calming

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

Route 9 MetroWest Smart Growth Plan

Section 1. General Development Guidelines

The following Development Guidelines should be considered to enhance the pedestrian and bicycle environment within the community.

Guidelines	Community Benefits	Illustration
Encourage compact, walkable, mixed use developments • Buildings close to road to shorten walking distances • Parking behind or in parking garages. • Buildings at least 2 stories high for sense of enclosure. • Multiple building entrances • Avoid blank facades • Buildings of Appropriate scale and detailing for context • Desired mix of land uses TBD	• Economic benefits to local governments & home owners: Allows growth while minimizing congestion • Supports public transit efficiency • May reduce commute times • Improve air quality • Improve visual quality • Minimize pedestrian/vehicular conflicts • Reduce reliance on cars and fossil fuels • Preserves open space • Health Benefits of walking and biking • Community Social Interaction	 Mill Village, Sudbury. Photo Courtesy Randall Arendt
Require pedestrian and bicycle friendly streetscapes (Described in more detail below in sections on pedestrian and bicycle enhancements and traffic calming) • Continuous sidewalks • Crosswalks, • Medians • Landscaping • Goal to develop "Complete Streets" ie. All users of roadway given equal importance.	• Pedestrian and bicycle safety • Improved visual quality • Reduce vehicle trips and vehicle miles travelled • Improved environmental quality • Health Benefits of walking and biking	 Commonwealth Avenue, Newton Photo by CRJA

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

Route 9 MetroWest Smart Growth Plan

Encourage structured parking and place open parking behind buildings. • Animate ground floor of parking garages with shops and restaurants. • Consider shared parking. • Reduce parking requirements in mixed use, walk-able areas and those well served by transit. • Consider land banking of parking where requirements seem excessive.	• Improved visual quality • Provides interest and activity to reduce actual and psychological distances between buildings and uses to encourage walking • Minimizes pedestrian crossings of large parking field • More efficient use of land by minimizing land area required for parking	 Legacy Place, Dedham Photo by Bruce Leish, MWRC
Natural storm-water management • (Incorporate stormwater treatment into planting areas and tree pits) • Minimize curbing • Native Landscaping	• Minimize runoff and flooding • Filtration of pollutants before entering stormwater system, wetlands, and rivers. • Reduced cost of stormwater systems • Increase survival rate and health of plantings	 Photo Courtesy Randall Arendt

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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Maximize trail connections and visibility. Connections to: • Transit stations • Shopping areas • Opens space and recreation • Schools • Public facilities.	• Safer routes • Promote walking and exercise	 Milford Upper Charles Trail Photo by Bruce Leish, CRJA
Maintain historic site elements and unique or special natural site features. • Historical relics • Topography • Water bodies • Wetlands • Wildlife habitat • Views	• Promotes a sense of place and a connection to the past • Improved visual quality • Reuse of materials reduces energy required to manufacture new materials	 Computer Associates Conference Center, Framingham Photo by Bruce Leish, MWRC

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

Route 9 MetroWest Smart Growth Plan

Section 2. Specific Design Guidelines

This section describes more specific design guidelines for pedestrian and bicycling enhancements in both public and private areas, as well as transit support and traffic calming measures.

Pedestrian Enhancements

Guidelines	Community Benefits	Illustration
Sidewalks • Continuous sidewalks • Paving to edge of road in more urban areas with high amounts of crossing foot traffic and/or curbside parking. Consider specialty paving or border feature strip. • ADA compliant sidewalks and paths, including curb ramps with detectable warnings and 2% maximum cross-pitch • Walkable pavements: concrete, bituminous concrete (asphalt), brick or concrete unit pavers (set on a concrete base for stability), stone. • Extend sidewalk material across driveways and curb cuts	• Pedestrian safety • Improved visual quality • Accessibility for all users • Quality materials and construction provide lower long-term life-cycle costs	 Attleboro, MA Photo by Bruce Leish, CRJA

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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Sidewalks (continued) • Set back from curb with generous planting strip where possible, especially on high speed arterials. Possible meandering curving sidewalks.	• Buffer from noise and pollutants • Safer pedestrian environment	 Home Depot, Natick Photo by Bruce Leish, CRJA
Pedestrian Crossings • Curb bump outs (road neckdowns) • Crosswalks – Comfortable, frequent, highly visible (Reflective thermoplastic strips, concrete unit pavers with granite edging on concrete base with sand swept joints, stamped asphalt, stamped concrete, solid color traffic paint, reflective paints, polymers. Untreated concrete not recommended in roadway due to potential salt deterioration.	• Minimize crossing distances for safety • Improved visual quality • Quality materials and construction provide lower long-term life-cycle costs	 oto by Bruce Leish, CRJA

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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Bicycle Enhancements : (All bicycle enhancements should conform to MUTCD and "Complete Streets Guidelines")

Guidelines	Community Benefits	Illustration
Continuous bike lanes or bike paths to the extent possible • 10-12' off-road path or shared path	• User safety and convenience • Encourages alternative s to vehicular travel •	 Natick Mall Shared Use Path Photo by Bruce Leish, MWRC
Bike lanes of ample width • 4' on-road bike lanes each direction	• User safety and convenience • Encourages alternative s to vehicular travel • Environmental benefits • Health benefits	 Rochester, NY Visualization by CRJA

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

Route 9 MetroWest Smart Growth Plan

Proper pavement marking symbols and lane markings such as • "Bike box" at intersections • Bicycle symbol at like lanes	• Increased safety for cyclists • Clearer direction for motorists and cyclists	 Portland, Oregon Bike Box Photo Public Domain
Cycle tracks • Where possible, provide separate off-road lanes for bicycles and pedestrians • Clearly define lane with markings, and color	• Minimize vehicular bicycle conflicts • Increased safety for cyclists • Clearer direction for motorists and cyclists	 Vassar Street, Cambridge Photo by CRJA

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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Transit Issues (Amenities for pedestrians and bicyclists in support of transit)

Guidelines	Community Benefits	Illustration
Well located bus pull offs with shelters	• Provides safe, visible and comfortable waiting area. • Potential to reduce vehiclular reliance • Environmental benefits • Health benefits of walking to bus.	 Source: National Complete Streets Coalition
Dedicated transit lanes or Bus/bike shared lanes	• Improves speed, safety and reliability of bus system.	 Photo Source: CNU

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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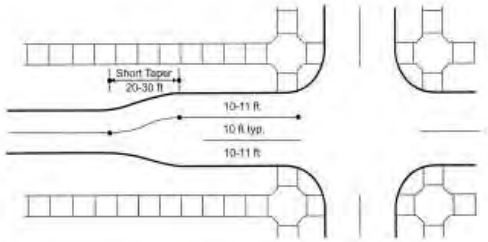
Traffic Calming Issues (To improve the pedestrian and bicycle environment, both private and public)

Guidelines	Community Benefits	Illustration
Narrower Streets and Travel Lanes • Lanes as narrow as 10 feet wide are acceptable per the MHD Design Guide	• Reduces Speeds • Provides more room for medians, wider sidewalks, bike lanes and planting strips.	 Source: MHD Design Guide
Reduce number of lanes	• Reduces Speeds • Provides more room for medians, wider sidewalks, bike lanes and planting strips.	 Source: National Complete Streets Coalition

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

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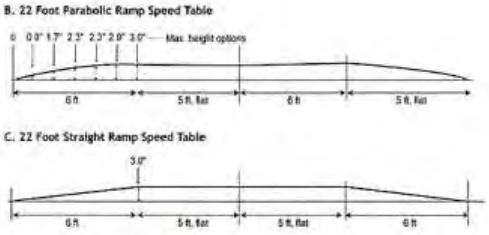
Speed Tables • Raises crossing or entire intersection flush with curb. • Provide gradually sloped sides, well marked to alert drivers	• Slows Traffic at pedestrian crossings and intersections • Provides accessible crossings without need for ramps • Enhance pedestrian safety	 Source www.bikexpt.com  Source www.bikexpt.com  Source: MHD Design Guide

Refer to http://www.mapc.org/route-9 to view entire Design Guidelines

Route 9 MetroWest Smart Growth Plan

Implementation Strategies and Phasing

- Zoning/Overlay District/Incentives/Form Based Codes
- Maintain Lower Density Between Nodes(SGOA's)
- TDR (Transfer of Development Rights)
- Infrastructure Improvements – Public Streetscape/Street Layout/Parking
- TIF's (Tax Increment Financing)
- BID's (Business Improvement District) Fees
- Parking Garage Contribution System / Public Funding
- Public / Private Partnerships
- Offsite Mitigation
- Infill with Temporary Uses

Route 9 MetroWest Smart Growth Plan

Implementation Strategies and Phasing

Items for Towns to Consider When Developing Zoning and Implementing Components of the Smart Growth Plan:

- Parcel Interconnectivity Including Possible Rear E-W Roadways
- Mix of Uses. Which Uses? How much of Each?
- Density/FAR at nodes and Between
- Height Limits – By Right and by Bonus (for Infrastructure/Amenities/Garages)
- Transfer of Development Rights (TDR)?
- Amount of Multi-Family Residential. Rental vs Condos
- Which SGOA's to Implement

Route 9 MetroWest Smart Growth Plan

Implementation Strategies and Phasing

Items for Towns to Consider When Developing Zoning and Implementing Components of the Smart Growth Plan:

- Air Rights Buildings?
- Amount of Public Infrastructure Investment
- Service Roads?
- Mill Street Connector? Autos or Shuttle Buses and Bikes Only?
- Mass Pike Connector (MDOT)
- Cochituate Rail Trail / Shuttle Bus?
- Possible Short Term Actions (Low Hanging Fruit)

Route 9 MetroWest Smart Growth Plan

Thank You!

For More Information

mapc.org/transportation/route-9

MetroWest Regional Collaborative
Fostering Sustainable Communities

MAPC
METROPOLITAN AREA PLANNING COUNCIL