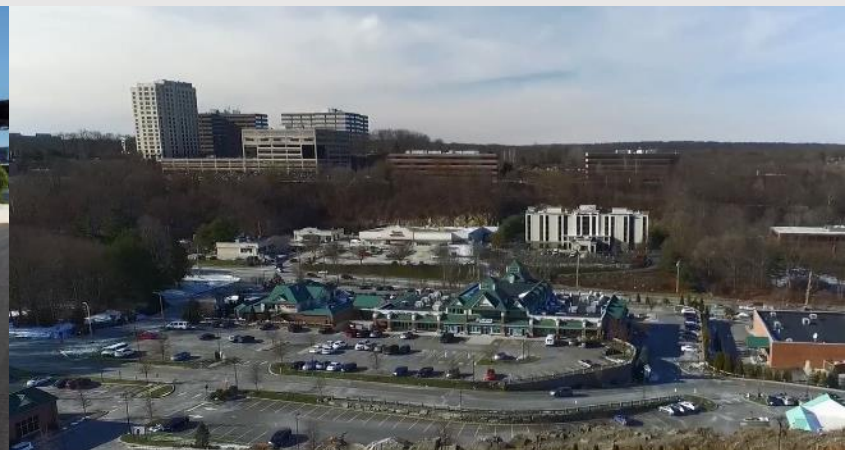




Route 8 & Waterbury Branch Line Corridor Transit-Oriented Development & Alternate Transit Modes Assessment Project

TOD Build-out Tool Webinar – February 10, 2021



Alt Modes Assessment

- Multi-task engineering & planning study
- Route 8/WBL corridors
- Identify new, enhanced public transit services
- Identify future land use scenarios that support transit services
- Enhance transit connectivity
- Incentivize transit oriented & supported developments
- Avoid expensive highway expansion costs



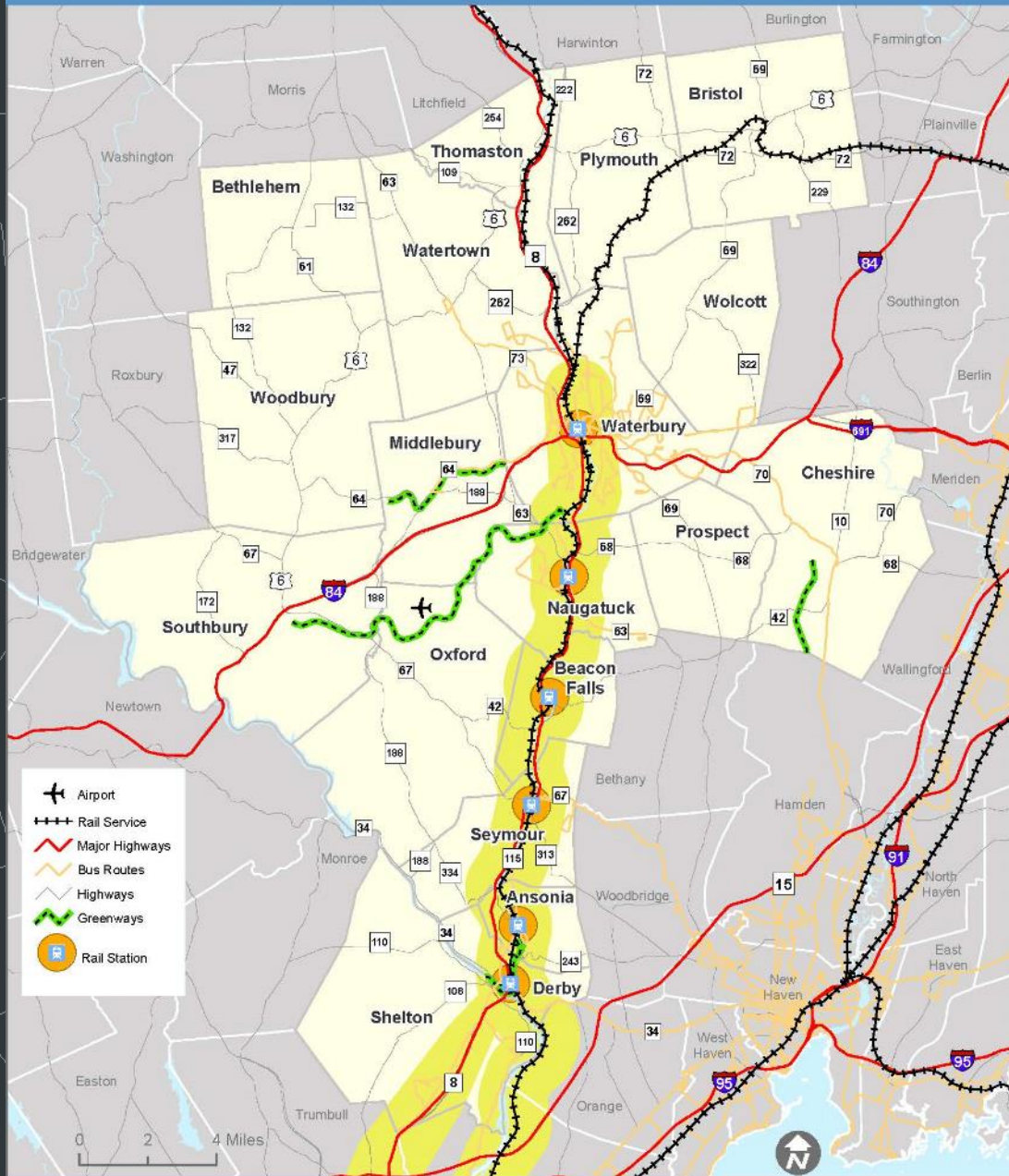
Route 8 Corridor
Bus Rapid
Transit

Commuter Rail
Line: Waterbury
Branch
Improvements

TOD: Lower
Naugatuck Valley
Urban Centers

Station Area
Enhancements:
WBL Stations

Route 8 Alternative Modes Corridors



Project Area

■ The Naugatuck Valley

- Between Waterbury and Bridgeport
- 19 Cities & Towns - 450,000 residents
- 158,781 jobs/ Work force of 237,050

■ Transportation Network

- Waterbury Branch Rail Line
- Route 8 Expressway

■ Station Areas Studied

- Derby-Shelton
- Ansonia
- Seymour
- Beacon Falls
- Naugatuck

■ Growing employment centers

- Especially along the Bridgeport Avenue



Project Study Team

- NVCOG – Project Management
- AECOM – Prime Consultant
 - CDM Smith – TOD Scenarios, Forecasting
 - Harriman – Urban Design
 - Planning4Places DBE – Planning Support, Build Out Scenarios
 - Zuvic & Carr Associates SBE – Data Collection, Parking Inventory



Technical
Advisory
Committee

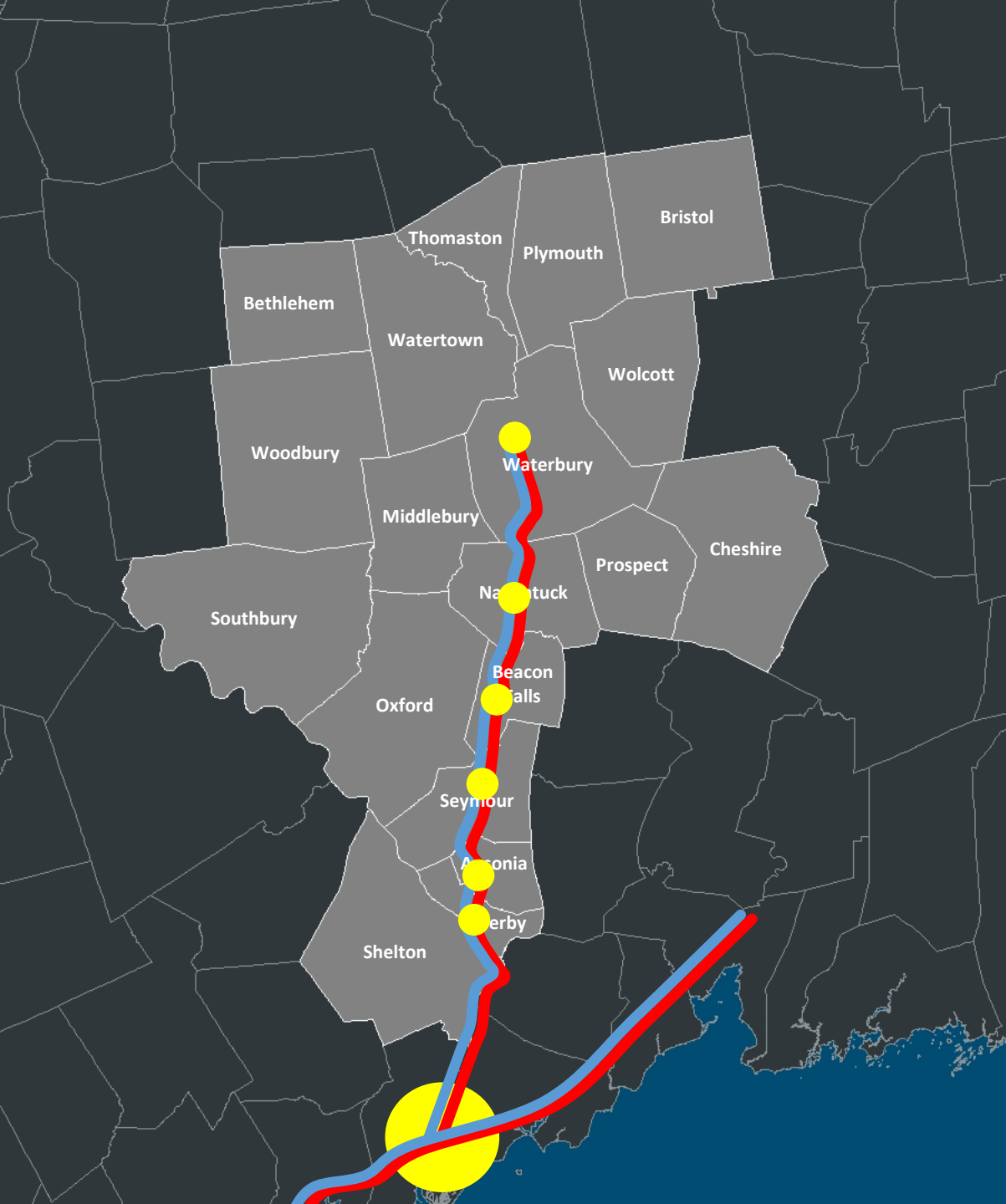
Project Website

TOD Charrettes
and Visioning
Sessions

WRL Capital
Improvement
Program
Summits

Deliverables Completed to Date

- Project Website: rt8corridorstudy.com
- WBL On-Board Passenger Count & Ridership Survey, 12/2017
- Existing Conditions Report, 10/2018
- TOD Scenarios Report, 2/2019
- BRT Assessment Report, 4/2019
- Waterbury Rail Line Recommended Capital Improvement Plan, 1/2020
- Alternatives Report – underway



TOD Economic Opportunities

David V. Sousa, RLA, AICP

Senior Landscape Architect/
Transportation Planner

CDM Smith



Wolcott



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TOD Build-Out Tool

Route 8 & Waterbury Branch Line Corridor
Transit-Oriented Development & Alternate
Transit Modes Assessment Project

Project Website: Rt8CorridorStudy.com

February, 2021



AECOM

Agenda

- Objective of Workshop
- Review of Potential TOD in Your Community
- Overview of TOD Build-Out Tool
- Step-by-Step Instructions to Update Tool

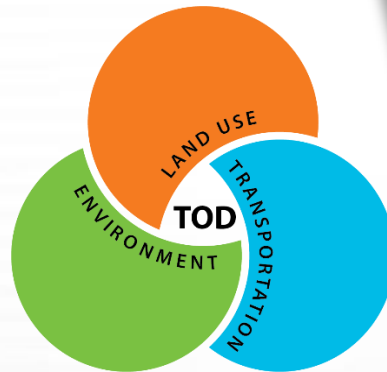


Objective of Workshop

The background is a solid blue color. In the top right corner, there are several thin, white, intersecting lines that form a complex geometric pattern, possibly representing a network or a series of connections.

What Is Transit-Oriented Development (TOD)?

- TOD integrates transportation, land use and the environment
- Transit supports TOD and TOD supports transit
- Benefits to communities:
 - Health and Safety
 - Transportation Choice
 - Environmental Sustainability
 - Community
 - The Economy



Naugatuck Valley Transit-Oriented Development

What is TOD?

Transit-Oriented Development (TOD) is a proven economic growth strategy that integrates **Land Use**, **Transportation** and the **Environment** and results in new jobs and more sustainable and walkable communities. TOD is a form of infill development that encourages use of alternative transit such as buses and trains as well as non-motorized travel –walking and biking. Successful TOD's include:

- A dense mix of land uses, including housing, commercial, parks and civic buildings.
- New, diverse, residential development within a 10-minute walk of transit station.
- Commercial uses adjacent to transit stations or stops rather than large parking lots.
- A network of streets that offer safe walking and biking routes.

What Are the Benefits of TOD's:

<h3>Health and Safety</h3> <ul style="list-style-type: none"> • TOD and walkable neighborhoods encourage healthier, pedestrian-based lifestyles. • Reduced automobile travel results in less vehicle emissions and decreased incidence of respiratory and cardiovascular disease. • Street design encourages slower speeds that improve pedestrian and bicycle safety. • Vibrant land uses close to the sidewalk provide more "eyes on the street" which discourages crime. 	<h3>Transportation</h3> <ul style="list-style-type: none"> • TOD enables people to live within walking distance of transit and improves transportation choice. • Links to other modes of travel make it easy for people to use transit and travel to jobs in other cities, to education and to regions that are more scenic. 	<h3>Environmental Sustainability</h3> <ul style="list-style-type: none"> • Compact development reduces sprawl and preserves farmland and open space. • Reduced parking means less paving which results in improved water quality. • TOD is less auto-centric and reduces the consumption of fossil fuels which results in less air pollution and decreased greenhouse gases. • TODs are naturally efficient; people who live in TODs have smaller carbon "footprints."
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Can TOD Work in My Town?

TOD, or Transit-Oriented Development, can be created in any city or town. The intensity of development depends on the scale, density and transportation assets of the community and the preferences of residents. In fact, historically, the urban structure of Naugatuck River Valley's towns and cities developed many TOD qualities. In their heyday, Naugatuck River Valley towns, worked, and shopped within compactly around train stations; most residents lived, worked, and shopped within walking distance of jobs and services and had easy access to transit to reach distant cities. This was a highly efficient form of community development that contributed to healthy, stable neighborhoods, quality housing and vibrant downtowns. The demise of much of the manufacturing base of the Valley and the proliferation of the use of automobiles resulted in land use changes that compromised the compact and walkable character of the Valley's towns. TOD can help communities retrofit their central business districts to recapture the Valley achieve national status during the industrial revolution – but in ways that position it to benefit from the digital revolution.

Where Can I Learn More About TOD?

Following are links to great information or resources about Transit-Oriented Development, including from the Naugatuck Valley Council of Governments:

- Naugatuck Valley Council of Governments: "Transit Oriented Development in the Lower Naugatuck Valley - Model Zoning & Financial Tools." August, 2016. http://www.nvcogct.org/sites/default/files/TOD_Model_Regulations_Document2016-09-28_reduced.pdf
- Partnership for Sustainable Communities <https://www.sustainablecommunities.gov/>
- Center for Transit Oriented Development <http://www.ctod.org/>
- The Institute for Transportation and Development Policy <https://www.itdp.org/>
- Mixed-Income Transit Oriented Development National Action Guide <http://www.mitod.org/home.php>

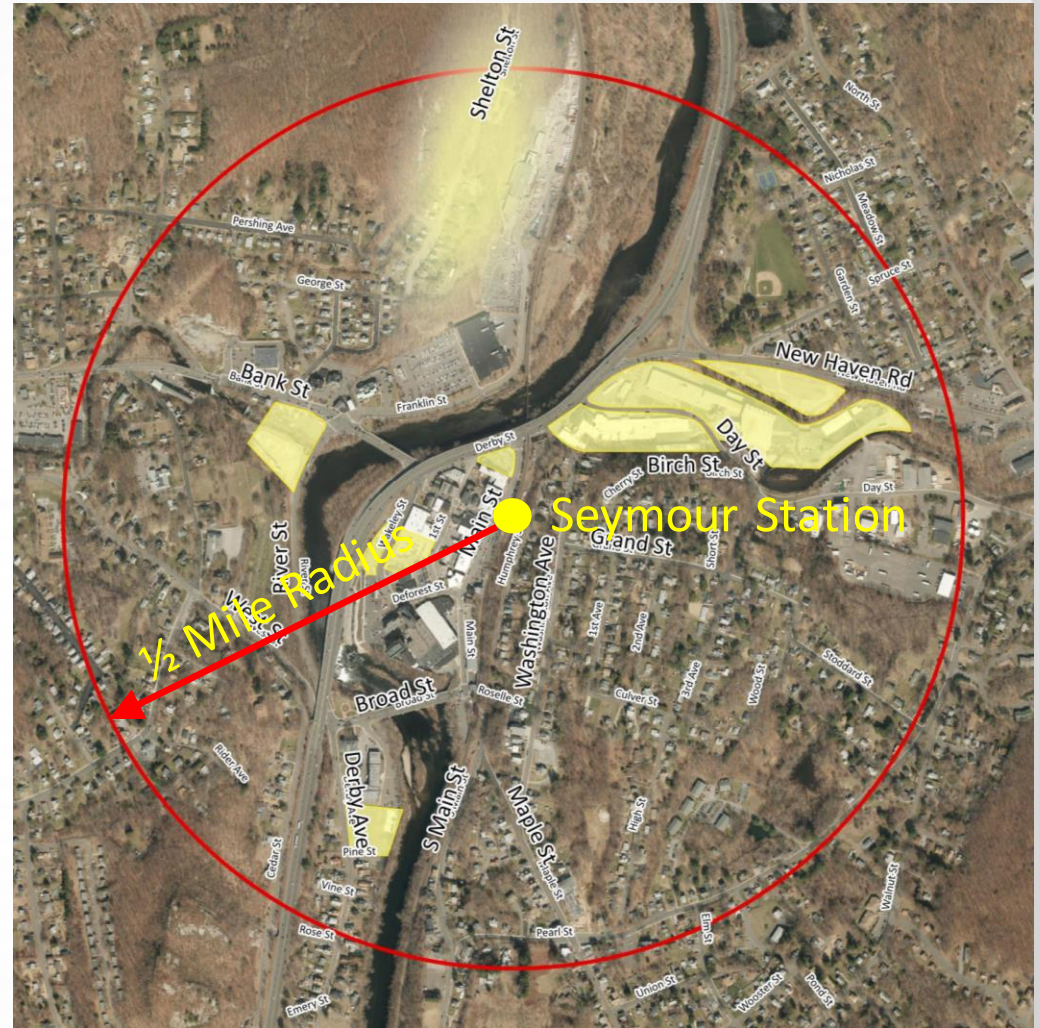
TOD Visioning

What's in Your Downtown?

Review of TOD Potential in Your Community

TOD Opportunity Sites in Seymour

- TOD enables people to live within walking distance of transit.
- Easy & safe walking, bicycle routes are key.
- Convenient transit - passenger shelters, lighting, traveler info (maps, schedules).
- Adequate parking and drop-off areas at station are also important.



Visual Preference Surveys

E. Pedestrian Environment

D. Architectural Character

C. Streets and Streetscapes

B. Site Layout

A. Density and Scale

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning and rate the overall image and ignore minor details.

Things to Consider

- Height of the Buildings
- Attached or Detached
- Varying Heights of the Buildings



A1. 4-story buildings set apart



A2. 2-story attached buildings



A3. 1 and 1.5-story buildings set apart



A4. 3-story buildings set apart



A5. 3-and 4-story attached buildings



A6. 5- and 6-story attached buildings



A7. Buildings higher than 6 floors set apart



A8. 1 and 1.5-story attached buildings



A9. 3-story attached buildings



A10. 2 and 2.5-story buildings set apart



A11. 2-story buildings set apart

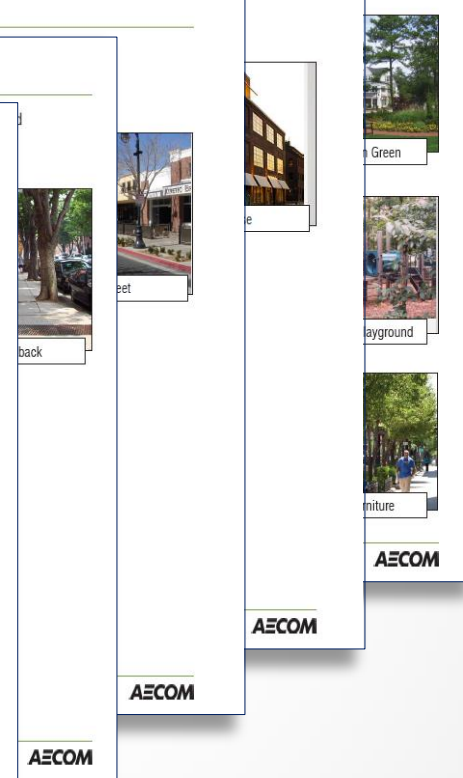


A12. 2- and 2.5-story buildings

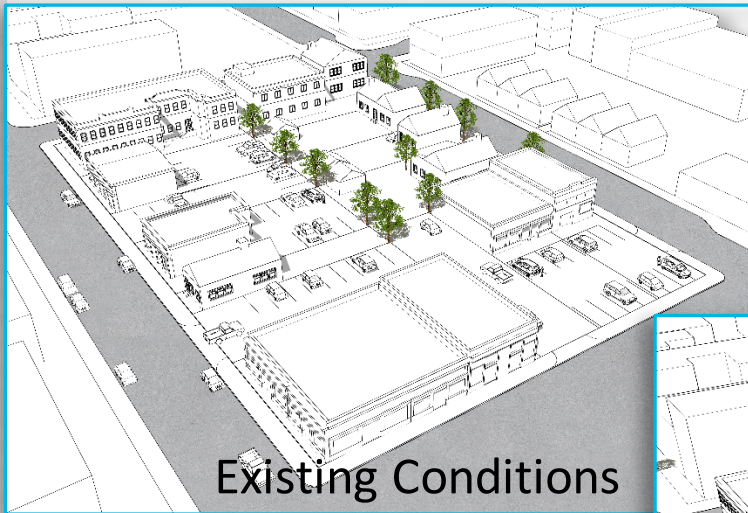
NVCOG

ROUTE 8 AND WATERBURY BRANCH LINE CORRIDOR TOD

AECOM

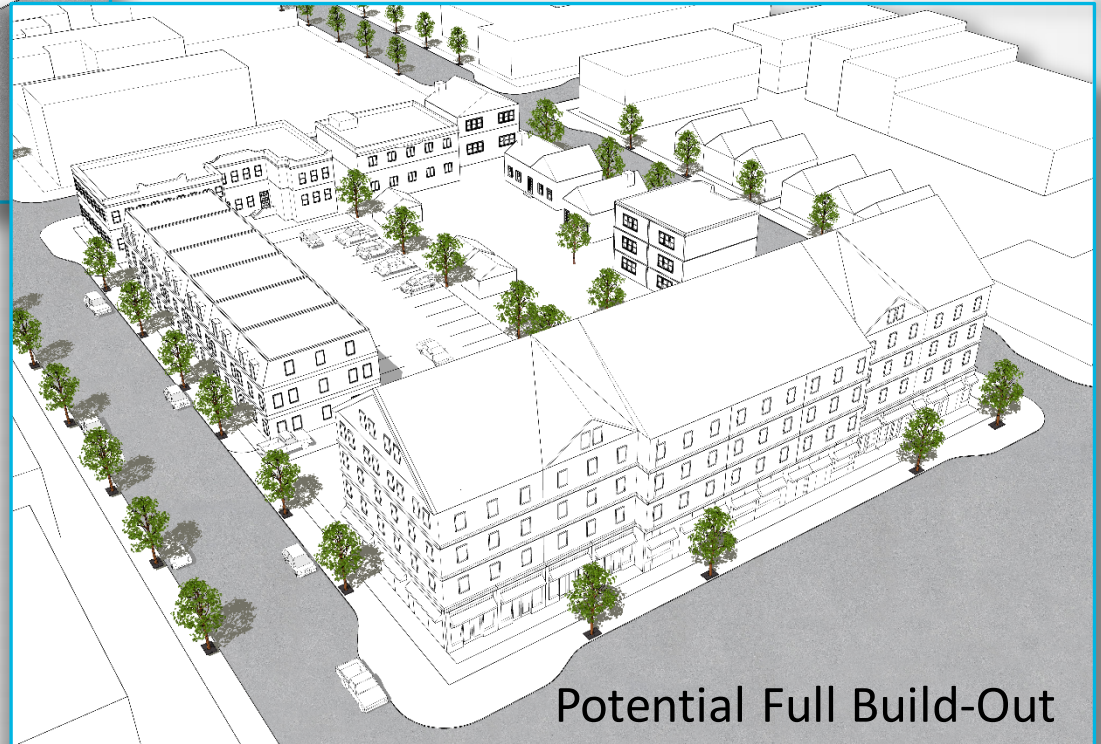


Draft 'Model Block' for Beacon Falls & Seymour



Existing Conditions

- Density & Scale
- Streetscaping
- Site Layout
- Architectural Character



Potential Full Build-Out

Overview of TOD Build-Out Tool

Build-Out Model Overview

1

Input TOD Opportunity Sites

2

Determine Net Land Area

3

Input Desired Density

4

Input Dwelling Unit Size/ Mix of Uses

5

Input Parking Reduction Values

6

Estimate New Residents & Employees of TOD

Six step process to update TOD Build-Out Model

Transit-Oriented Development (TOD) Potential Downtown Derby, CT

No. of TOD Opportunity Sites	34	
Gross Land Area of Opportunity Sites	22.6 acres	
Area required for R.O.W./Open Space	3.4 acres	
Net Land Available for TOD	19.2 acres	
F.A.R.* of Derby Model Block	1.2	
Potential New TOD Building Area	1,005,039 sq. ft.	
Projected Average Dwelling Unit Size	1,100 sq. ft.	
Potential Mix of Uses:		
Residential	40%	402,015
General Retail	20%	201,008
Restaurants/Dining	15%	150,756
Office/Commercial	15%	150,756
Maker-Space/Live-Work Studios	10%	100,504
	100%	1,005,039

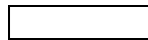
Legend



Number Derived from the "Opp Sites" Tab



Number Can Be "Toggled" Up or Down to Adjust Model



Number is a Product of Formula (should not be altered)

	Current	Reduced	
Residential	2.5	1.0	spaces per dwelling unit
General Retail	6.67	2.5	spaces per 1,000 g.s.f.
Restaurants/Dining	16	6.1	spaces per 1,000 g.s.f.
Office/ Commercial	4	1.5	spaces per 1,000 g.s.f.
Maker-Space/Live-Work Studios	4	1.5	spaces per 1,000 g.s.f.

**Parking Demand Management Strategies

TOD is better enabled when municipalities revise overly conservative minimum parking regulations to utilize new, downtown-appropriate parking requirements (preferably based on parking maximums) that factor:

- A) Availability of on-street parking that is managed or enforced to accommodate use by short-term users (shoppers) and discourage long-term use.
- B) Proximity to municipally owned/managed parking facilities.
- C) Efficiencies gained through shared parking among a diversity of uses in a building and on the same block, where adjacent uses have complementary peak parking demand times.
- D) Reduced travel demand as a consequence of improved access to transit, and improved transit service levels and increased use of alternative transportation systems (transit and non-motorized) as a direct result of creating more walkable and bikable streets.
- E) The adoption and implementation of Travel Demand Management (TDM) and parking demand management programs that encourage employers to promote use of transit and car/van-pooling by their employees and incentivizing private, shared vehicle companies (taxis, Uber, Lyft, Zip Car) to provide service in the community.

		Reduction Value	% of Req'd
A	Availability of managed on-street parking		5%
B	Proximity to municipal parking facility		25%
C	Mixed-uses w/ Shared Parking & Complementary Demand		10%
D	Improved Transit & Non-motorized Travel		17%
E	Traffic Demand Management (TDM, e.g. Zip Car, Uber)		5%
Total Reductions			62%

	Floor Area (s.f.) from Table A	Ave. Dwelling Unit Size (s.f.) from Table A	No. of Dwelling Units	Current Required Parking Rate (Table B)	Resultant Required Parking Spaces	Reduced Parking Rate (from Table C)	Resultant TOD Parking Demand
Residential	402,015	1,100	365	2.5	914	1.0	347
General Retail	201,008			6.67	1,341	2.5	509
Restaurants/Dining	150,756			16.0	2,412	6.1	917
Office/Commercial	150,756			4.0	603	1.5	229
Maker-Space/Live-Work Studios	100,504			4.0	402	1.5	153
Total	1,005,039			5.6	5,672	2.1	2,155

	Floor Area (s.f.) from Table A	Ave. Dwelling Unit Size (s.f.)	No. of Potential Dwelling Units	Presumed Family Size	Presumed Employees per 1,000 s.f. of TOD	Potential New TOD Residents	Potential New Employees	Potential New TOD Residents and Employees
Residential	402,015	1,100	365	2.5		914		
General Retail	201,008				2		402	
Restaurants/Dining	150,756				3		377	
Office/Commercial	150,756				4		603	
Maker-Space/Live-Work Studios	100,504				4		402	
Totals	1,005,039					914	1,784	2,698

The background is a solid blue color with several thin white lines that intersect to form various geometric shapes, including triangles and quadrilaterals, primarily on the right side of the page.

Step-by-Step Instructions to Update TOD Build-Out Tool

STEP 1 – Input TOD Opportunity Sites

- Sites on the “Opportunity Sites” tab can be added or detracted as conditions change, and gross land area of each site can be adjusted as needed.

“Ansonia Opp. Sites” Tab or Worksheet

I.D.	ACRES	OWNER_NAME	LOCATION
267	1.01	ANSONIA COMMONS LLC	300 MAIN ST
291	0.00		UNKNOWN
297	0.05	KAHYAOGLU DAWN M	41 BRIDGE ST
303	0.08	SEDDA INVESTMENTS LLC	47 BRIDGE ST
315	0.11	CITY OF ANSONIA	296 MAIN ST
344	0.14	ANSONIA RIVERVIEW APARTMENTS LLC	7 W MAIN ST
351	0.39	ANSONIA RIVERVIEW APARTMENTS LLC	15 W MAIN ST
357	0.15	CAPITAL PLAZA ASSOCIATES	290 MAIN ST
410	2.30	FITZPATRICKS INC	430 E MAIN ST
418	0.30	FIALLOS JUAN C	126 S CLIFF ST
465	10.00	ANSONIA PARKING AUTHORITY	30 W MAIN ST
478	1.01	WACHOVIA BANK OF DELAWARE	211 MAIN ST
638	2.65	WASHINGTON MANAGEMENT LLC	65 MAIN ST
681	5.30	CITY OF ANSONIA	500 E MAIN ST
892	1.98	WASHINGTON MANAGEMENT LLC	35 MAIN ST
937	4.20	WASHINGTON MANAGEMENT LLC	1 W MAIN ST
948	3.58	PANDEL PROPERTIES LLC	35 N MAIN ST
1160	16.50	ANSONIA COPPER & BRASS INC	75 LIBERTY ST
1161	22.04	ANSONIA COPPER & BRASS	7 RIVERSIDE DR
	71.79	Total Acres	

STEP 2 – Determine Net Land Area

- The “ROW & open space set aside factor” can increased or decreased, depending upon your community’s zoning or subdivision regulations, to determine the “Net Land Area Available for TOD”.

Table A of TOD Build-out Tab or Worksheet

Table A: TOD Opportunity Sites		
No. of TOD Opportunity Sites	19	
Area of Opportunity Sites	71.8 acres	
Area required for R.O.W./Open Space	10.8 acres	
Net Land Available for TOD	61.0 acres	
F.A.R.* of Derby Model Block	1.0	
Potential New TOD Building Area	2,658,097	
Projected Average Dwelling Unit Size	1,100 sq. ft.	
Potential Mix of Uses:	<u>Percent</u>	<u>Sq. Ft.</u>
Residential	50%	1,329,048
General Retail	15%	398,714
Restaurants/Dining	10%	265,810
Office/Commercial	15%	398,714
Maker-Space/Live-Work Studios	10%	265,810
	100%	2,658,097

STEP 3 – Input Desired Density

- The FAR, or density of your downtown to understand how, for example, a relatively minor increase in development can significantly affect the square footage of future development or the number of potential new job in your downtown

Table A of TOD Build-out Tab or Worksheet

Table A: TOD Opportunity Sites		
No. of TOD Opportunity Sites	19	
Area of Opportunity Sites	71.8	acres
Area required for R.O.W./Open Space	10.8	acres
Net Land Available for TOD	61.0	acres
F.A.R.* of Derby Model Block	1.0	
Potential New TOD Building Area	2,658,097	
Projected Average Dwelling Unit Size	1,100	sq. ft.
Potential Mix of Uses:	<u>Percent</u>	<u>Sq. Ft.</u>
Residential	50%	1,329,048
General Retail	15%	398,714
Restaurants/Dining	10%	265,810
Office/Commercial	15%	398,714
Maker-Space/Live-Work Studios	10%	265,810
	100%	2,658,097

STEP 4 – Input Dwelling Unit Size/Mix of Uses

- Change “Average Dwelling Unit Size” to adjust for market or zoning changes.
- Change the % value for each category of land use to predict demand for future development.

Table A of TOD Build-out Tab or Worksheet

Table A: TOD Opportunity Sites		
No. of TOD Opportunity Sites	19	
Area of Opportunity Sites	71.8	acres
Area required for R.O.W./Open Space	10.8	acres
Net Land Available for TOD	61.0	acres
F.A.R.* of Derby Model Block	1.0	
Potential New TOD Building Area	2,658,097	
Projected Average Dwelling Unit Size	1,100	sq. ft.
Potential Mix of Uses:	<u>Percent</u>	<u>Sq. Ft.</u>
Residential	50%	1,329,048
General Retail	15%	398,714
Restaurants/Dining	10%	265,810
Office/Commercial	15%	398,714
Maker-Space/Live-Work Studios	10%	265,810
	100%	2,658,097

STEP 5 – Input Parking Reduction Values

- Adjust “Current” required parking by use per current zoning code.
- Adjust values in “Appropriate Reductions Through Parking Demand Management Strategies” section to reflect changes in parking code or public parking supply. Results may warrant reductions to minimum required parking in zoning regulations.

Table B of TOD Build-out Tab or Worksheet

Table B: Required Parking by Use		Current	Reduced			
Residential		2.5	1.0	spaces per dwelling unit		
General Retail		6.67	2.5	spaces per 1,000 g.s.f.		
Restaurants/Dining		16	6.1	spaces per 1,000 g.s.f.		
Office/ Commercial		4	1.5	spaces per 1,000 g.s.f.		
Maker-Space/Live-Work Studios		4	1.5	spaces per 1,000 g.s.f.		

Table C of TOD Build-out Tab or Worksheet

Table C: Appropriate Reductions Through Parking Demand Management Strategies**				Reduction Value	% of Req'd
A	Availability of managed on-street parking			5%	
B	Proximity to municipal parking facility			25%	
C	Mixed-uses w/ Shared Parking & Complementary Demand			10%	
D	Improved Transit & Non-motorized Travel			17%	
E	Traffic Demand Management (TDM, e.g. Zip Car, Uber)			5%	
Total Reductions				62%	38%

STEP 5B – Review Reduce Parking Demand

- Adjustments to “Current” required parking and in “Appropriate Reductions Through Parking Demand Management Strategies” provide output titled “Projected Parking Demand for TOD.”
- The benefits of reduced parking reflected in this table may warrant reductions to minimum required parking in zoning regulations.

Table D of TOD Build-out Tab or Worksheet

Table D: Computation of Projected Parking Demand for TOD							
	Floor Area (s.f.)	Ave. Dwelling Unit Size (s.f.)	No. of Dwelling Units	Current Required Parking Rate	Resultant Required Parking Spaces	Reduced Parking Rate*	Resultant TOD Parking Demand
Residential	1,329,048	1,100	1,208	2.5	3,021	1.0	1,148
General Retail	398,714			6.67	2,659	2.5	1,011
Restaurants/Dining	265,810			16.0	4,253	6.1	1,616
Office/Commercial	398,714			4.0	1,595	1.5	606
Maker-Space/Live-Work Studios	265,810			4.0	1,063	1.5	404
Total	2,658,097			4.7	12,591	1.8	4,785

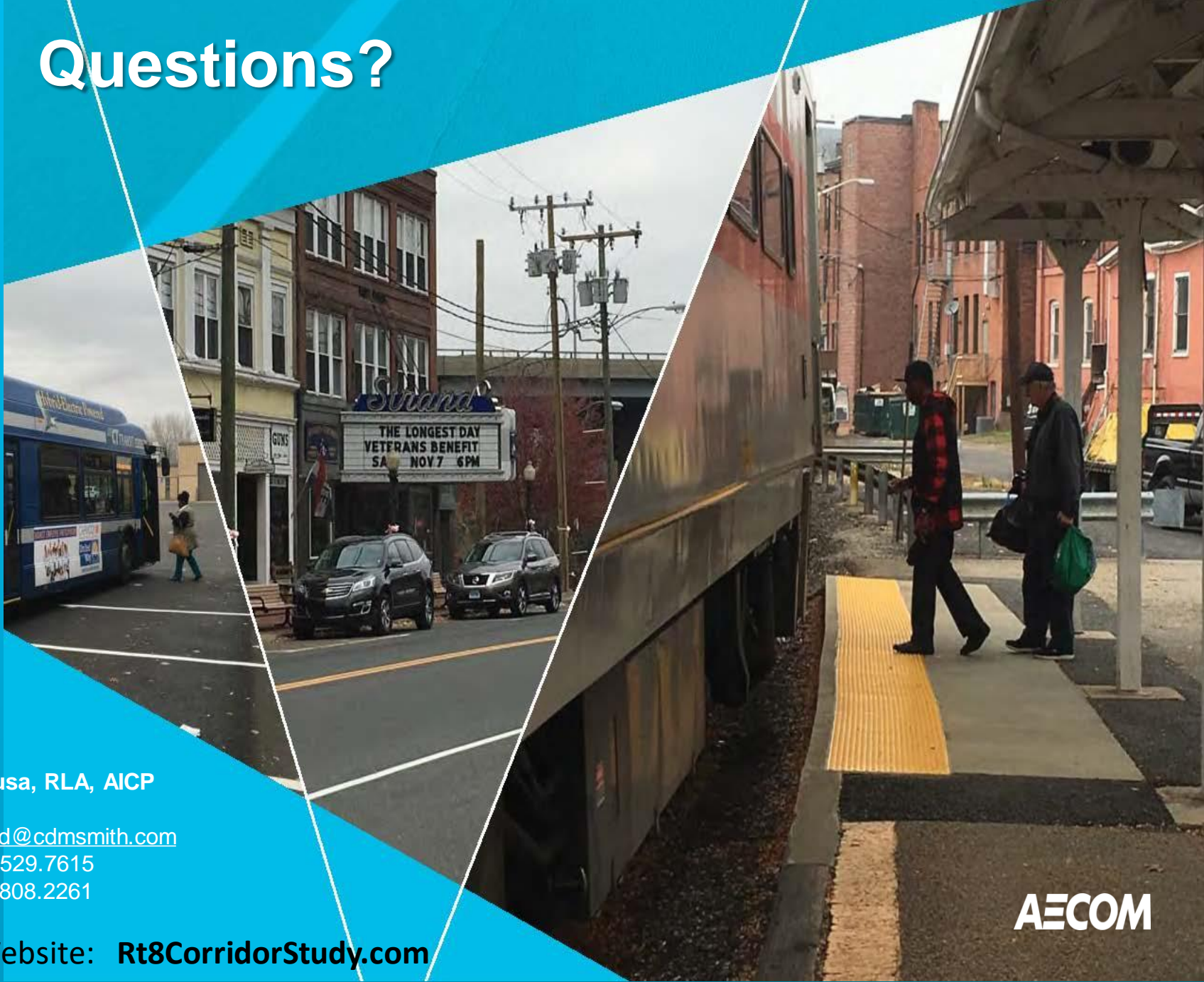
STEP 6 – Estimate New Residents & Employees

- Adjust “Family Size” and “Employees per 1,000 sq. ft. of TOD” to estimate future downtown residents and workers,
- These results represent one potential TOD scenario. The outputs help to understand and plan TOD – e.g. future tax revenue, future demand for utilities, future parking demand, future demand for transit, and future traffic.

Table E of TOD Build-out Tab or Worksheet

Table E: Computation of Projected New Residents and Employees of TOD Opportunity Sites								
	Floor Area (s.f.) From Table A	Ave. Dwelling Unit Size (s.f.)	No. of Potential Dwelling Units	Presumed Family Size	Presumed Employees per 1,000 s.f. of TOD	Potential New TOD Residents	Potential New Employees	Potential New TOD Residents and Employees
Residential	1,329,048	1,100	1,208	2.5		3,021		
General Retail	398,714				2		797	
Restaurants/Dining	265,810				3		665	
Office/Commercial	398,714				4		1,595	
Maker-Space/Live-Work Studios	265,810				4		1,063	
Totals	2,658,097					3,021	4,120	7,141

Questions?



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Tel: 860.529.7615
Direct: 860.808.2261

Project Website: Rt8CorridorStudy.com

AECOM