DCT 206

Transit-Oriented Development (TOD): Identification of Optimal Characteristics In Delaware

By

Edward J. O'Donnell
Theodore A. Patterson

Institute for Public Administration
University of Delaware

June 2010

Delaware Center for Transportation
University of Delaware
355 DuPont Hall
Newark, Delaware 19716
(302) 831-1446

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Project Manager: Catherine C. Smith (DTC/DelDOT)

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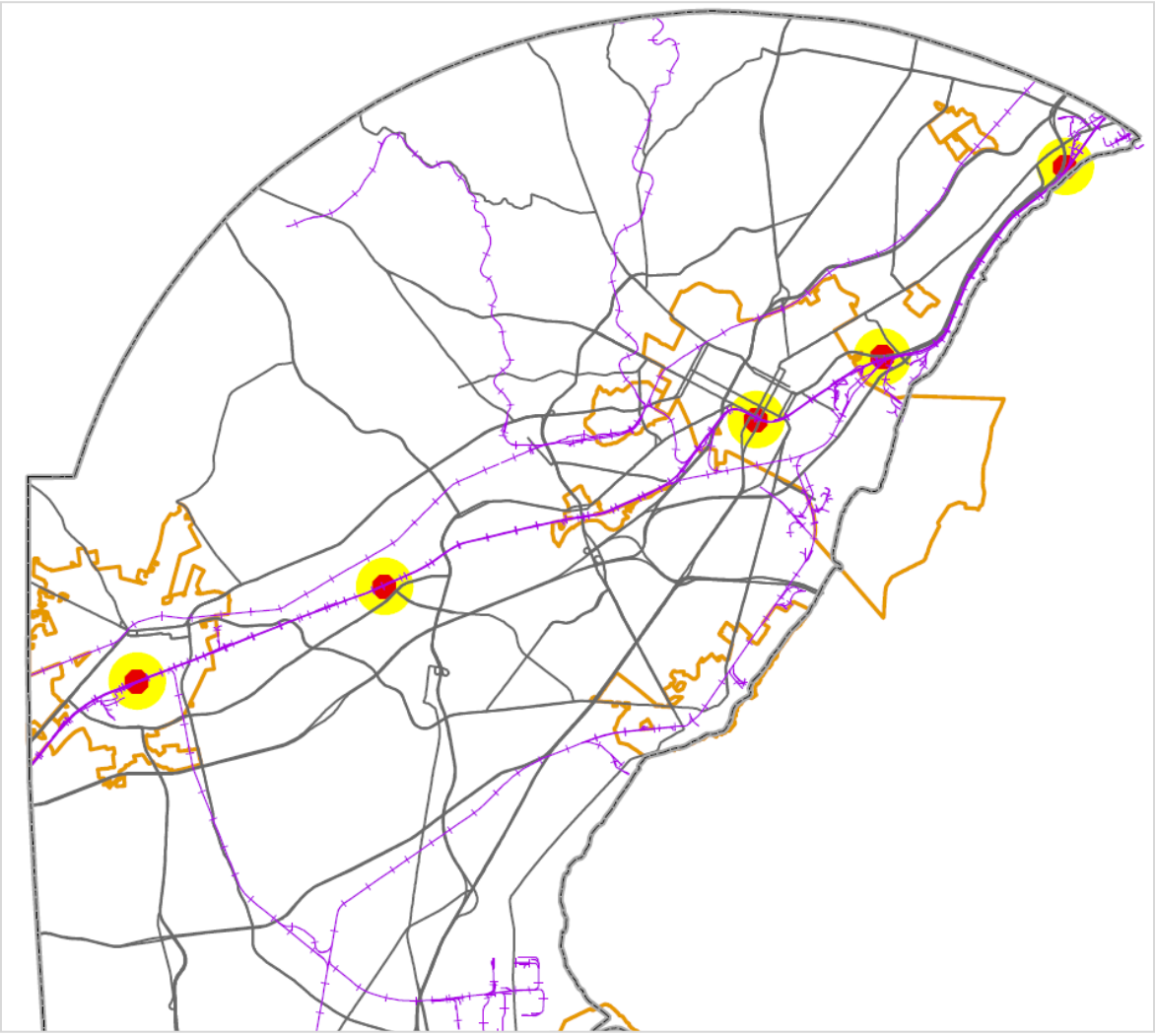

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PREFACE

As the director of the Institute for Public Administration (IPA) at the University of Delaware, I am pleased to provide this working paper, *Transit-Oriented Development (TOD): Identification of Optimal Site Characteristics in Delaware*. The University of Delaware's Institute for Public Administration worked in collaboration with the Delaware Center for Transportation, the Delaware Department of Transportation, and the Delaware Transit Corporation in preparing this working paper. The primary task of this working paper was to create a preliminary framework for evaluation of potential TOD sites in Delaware. This framework identifies the optimal site characteristics for TOD including a review of previous studies conducted on TOD and related literature regarding the success factors for TOD implementation. Based on the identified optimal site characteristics, the working paper outlines methodological frameworks for evaluating potential TOD sites in Delaware. The framework serves as a scorecard of sorts for planners to apply to potential TOD sites. The paper applies the evaluation framework to selected potential TOD sites in Delaware providing results of evaluation, GIS maps, and assorted graphics to show independent analysis of TOD potential for each individual site selected.

A working group meeting was held in April of 2010 to discuss the draft paper. Based on that meeting and research findings, recommendations were made to address TOD implementation in Delaware and to chart a path forward.

The Project Manager was Catherine C. Smith (DTC/DelDOT) and the Principal Investigator was IPA Policy Scientist Edward J. O'Donnell, AICP. Theodore A. Patterson was the Graduate Research Assistant who conducted the literature review, research analysis, and wrote the document. Special thanks go to Assistant Policy Specialist Mark Deshon who provided editorial support.

Jerome R. Lewis, Ph.D.

Director, Institute for Public Administration

ACKNOWLEDGMENTS

The following are those who provided input on the project through participation in a project workshop held during the final stages of project completion. We appreciate the cooperation and feedback received, because it empowers us to provide a more meaningful policy document for Delaware's future.

Catherine Smith
Project Manager
Delaware Transit Corporation

Wayne Henderson
Senior Planner
Delaware Transit Corporation

Ralph Reeb
Director of Planning
Delaware Department of Transportation

Herb Inden
Office of State Planning & Coordination
State of Delaware

Juanita Wieczoreck
Executive Director
Dover/Kent County Metropolitan Planning Organization

Sarah Keifer
Director
Kent County Department of Planning

Ted Williams
Legislative Committee Chair
American Council of Engineering Companies of Delaware

Peter Besecker
Director
City of Wilmington Planning

Roy Lopata
Planning Director
City of Newark

Terry Reilly

Executive Director
Delaware Transportation Management Association

Tigest Zigeye
Executive Director
Wilmington Area Planning Council

Dave Gula
Senior Planner
Wilmington Area Planning Council

Ann Marie Townsend
Director
City of Dover, Planning & Inspections

Owen Robatino
Transportation Planner
New Castle County, Department of Land Use

Pamela J. Scott
Partner
Saul Ewing LLP

Drew Knab
Assistant Director of Planning
University of Delaware, Facilities, Planning, and Construction

Martin Wollaston
Policy Scientist
University of Delaware

Marcia Scott
Policy Scientist
University of Delaware

Special thanks also go to project contributors Mark Deshon, Assistant Policy Scientist at the University of Delaware, who edited this report, and to Nicole Minni, Policy Scientist at the University of Delaware, and Andrew Homsey, Associate Policy Scientist at the University of Delaware, for GIS and graphic work.

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STATEMENT OF PROBLEM AND PURPOSE

The objective of this paper is to create a preliminary framework for evaluating the potential of transit-oriented development (TOD) sites in Delaware and apply that framework to selected locations throughout the state. This paper provides public officials and Delawareans with a roadmap for TOD implementation and success in the 21st century.

Background

Public policy discussions as well as accumulating local research point to TOD as an emerging issue of importance in Delaware. A 2007 Delaware Center for Transportation (DCT) *Transportation, Education, Research & Security Forum* document illuminated the need to further study TOD as it relates to the transportation system in Delaware and the Northeast Corridor. In November 2007 IPA released *Transit-Oriented Design: Illustrations of TOD Characteristics, A Working Paper*. In December 2008 the Delaware Transportation Energy Use Work Group recommended that "TOD [be promoted] as a Smart Growth approach based around multi-modal transportation." IPA convened an inter-agency working group meeting in April 2008 on TOD in Delaware, which produced excellent discussion and input on how to move forward. Finally, in June 2009 DCT, in conjunction with IPA, released *Integrating Transportation/Transit Planning in the Overall Planning Process*, a document that included several key recommendations related specifically to TOD in Delaware.

The University of Delaware's Institute for Public Administration published *Integrating Transportation/Transit Planning in the Overall Planning Process* in June 2009. That report was the precursor for this working paper and called for a string of policy changes in Delaware that included several recommendations related to promoting TOD in Delaware as a vital land use-transportation integration strategy. The state of Delaware currently has several opportunities to develop TODs both along commuter rail transit lines and bus routes as well as transit-ready communities within transportation infrastructure priority areas.

The new national attention TOD is receiving from the US Department of Transportation (DOT) under the direction of the Obama administration should provide adequate incentive for Delaware officials to move TOD forward as a centerpiece to the statewide land use and transportation agenda. DOT Secretary Ray LaHood spoke about the recent stimulus bill and opportunities for creating more livable streets, saying:

> We will emphasize sustainable investment and focus our policies on the people, businesses and communities who use the transportation systems… We will invest in jobs to expand transit capacity and modernize transit systems. *Transit is a centerpiece of my*

> *focus on livable communities, and our Department will work closely with Vice President Biden's "Middle-class Taskforce" on transit initiatives*.[1]

The Secretary further emphasized the connection between sustainable land uses and transportation on his official blog, stating that "our transportation investment decisions don't occur in a vacuum; they must be consistent with our housing policies."[2] To back up his statements LaHood announced in December 2009 that $280 million dollars in federal money would be allocated for development of bus and streetcar networks around the country.[3]

TOD is vital to a livable Delaware in the following ways:

TOD saves vital resources by conserving open space, curbing roadway infrastructure costs, and sparing consumers higher travel costs: The Transit Cooperative Research Program (TCRP) Report #74: "The Cost of Sprawl," written in 2002, found that the benefits of reducing sprawl between 2000 and 2025 in the US would save four million acres of land.[4] If sprawl was curbed between 2000 and 2025, the United States would save $109.7 billion in new roadway construction costs.[5] The United States would save $24.1 billion in personal daily travel costs.[6]

TOD will convert Delaware's auto-centric transportation system into a truly multi-modal network: A Travel Monitoring System Survey spanning 2001 to 2006 found that 96.4 percent of Delawareans still drive or ride in a car to work.[7] The number of workers walking to work dropped from 3.8 percent to 2.5 percent from 1990 to 2000.[8] The number of those riding a bike to work declined from 0.3 percent to 0.2 percent of the working population in the same time period.[9] Fixed-route bus ridership increased by 3.2 percent from 2005 to 2007.[10] However, during the same time, annual rail ridership on the SEPTA R2 line increased 18.5 percent.[11] A key contributing factor to this increase was gas prices. The below graph shows the strong correlation between gas prices and SEPTA R2 ridership:

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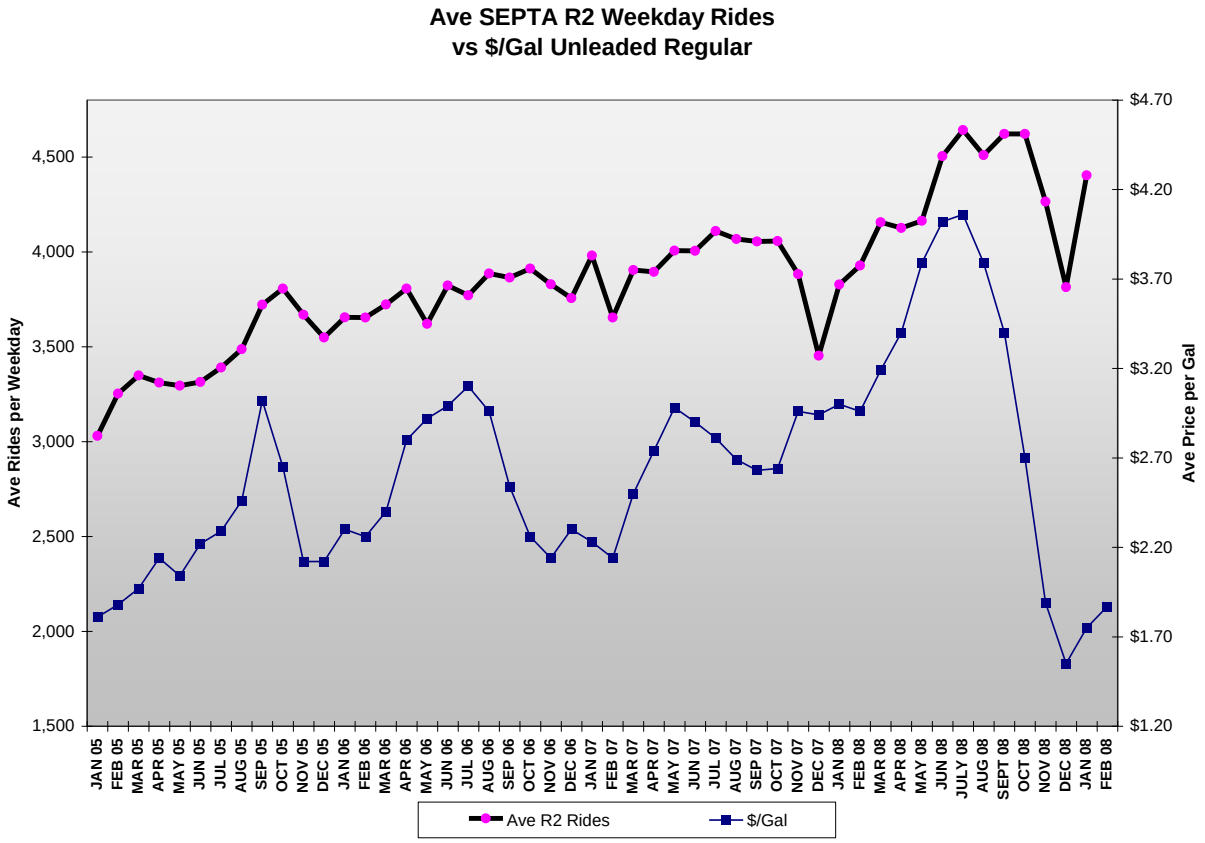
[1] Ernst, Michelle, *LaHood and the New USDOT Outdoing Early Expectations*, New York: Tri-State Transportation Campaign, March 27, 2009, http://blog.tstc.org/2009/03/27/lahood-and-the-new-usdot-outdoing-early-expectations.
[2] Ibid.
[3] Schor, Elana, *In New Orleans LaHood Unveils $280M in Streetcar and Bus* Grants, Washington DC: DC Streets Blog, December 1, 2009, http://dc.streetsblog.org/2009/12/01/in-new-orleans-lahood-unveils-280m-in-streetcar-and-bus-grants.
[4] Burchell, Robert W., George Lowenstein, William R. Dolphin, Catherine C. Galley, Anthony Downs, Samuel Seskin, Katherine Gray Still, and Terry Moore. *TCRP Report 74: Costs of Sprawl – 2000.* (Washington DC: Transportation Research Board, 2002), 36.
[5] Ibid.
[6] Ibid.
[7] Delaware Department of Transportation, *Delaware Transportation Facts 2007*, (Dover DE: DelDOT Planning, 2007), 11.
[8] Ibid., 19.
[9] Ibid.
[10] Ibid, 23.
[11] Ibid., 26.



(Source: Delaware Transit Corporation and the Delaware Department of Transportation)

Population increases necessitate that TOD better handle increased service demand: Between 2000 and 2030 Delaware's population is expected to grow by approximately 260,000; many are expected to live in Kent and Sussex Counties rather than the more urban New Castle County.[12]

Often public officials support TOD, but they don't know how to make it happen. They need to know what baseline requirements need to be fulfilled for a TOD to work. This paper is designed to start to answer these questions, so that, in the future, efficient and clear processes of review will move these proposals through the planning process. Planners should have a check list they can run through very quickly that gives them a good indication about whether or not a site could be a feasible TOD.

So what are we really creating with TOD? What does it look like at completion? A general definition of TOD is defined as follows:

> a mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use. The key features of TOD include (a) a mixed-use center at the transit stop,

[12] Ibid., 4.

> oriented principally to transit riders and pedestrian and bicycle travel from the surrounding area; (b) high-density of residential development proximate to the transit stop sufficient to support transit operations and neighborhood commercial uses within the TOD; and (c) a network of roads, and bicycle and pedestrian paths to support high levels of pedestrian access within the TOD and high levels of transit use.[13]

This paper will focus on local and regional strategies for TOD evaluation and implementation that will empower Delaware officials to create environments favorable to TOD projects. However, it will not address national issues that impact the success of TOD across America including retrofitting the interstate highway system to serve 21st century transportation demands, addressing the prevalence of free parking, and assessing the impact of artificially low gas prices on the transportation system.

The paper contains the following sections:

- ***Section 1: Optimum- Site Characteristics of TOD***
  - This section includes review of previous studies conducted on TOD and related literature regarding the success factors for TOD implementation.

- ***Section 2: Quantitative TOD-Scoring Framework For Site Evaluation***
  - This section, based on the identified optimal site characteristics, outlines the methodological framework for evaluating potential TOD sites in Delaware. The section serves as a scorecard for planners to apply to potential TOD sites.

- ***Section 3: Potential TOD Sites in Delaware***
  - This section applies the evaluation framework to selected potential TOD sites in Delaware. The section includes the results of evaluation, GIS maps, and assorted graphics to show independent analysis of TOD potential for each site selected.

- ***Section 4: Project Workshop Notes***
  - This section provides the meeting notes from the April 22nd, 2010, TOD project workshop that IPA held with public officials from across Delaware. The attendee list for the project workshop is included in this section.

[13] Transit Cooperative Research Program and Federal Transit Administration. *Transit-Oriented Development and Joint Development in the United States: A Literature Review*. Number 52. Subject Area: VI Public Transit. Responsible Senior Program Officer: Gwen Chisholm. (October 2002). http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rrd_52.pdf, 6.

SECTION 1: OPTIMUM-SITE CHARACTERISTICS OF TOD

The following section will describe general frameworks for evaluation of TOD optimum-site characteristics that serve as templates for Delaware TOD-framework development mentioned in TOD literature. These general frameworks will be used to create the basis for the following section—*Quantitative TOD Scoring Framework for Site Evaluation*.

To start, the University of Delaware Institute for Public Administration (IPA) under the auspices of the Delaware Center for Transportation produced *Integrating Transportation/Transit Planning in the Overall Planning Process* in June 2009. This report provides various recommendations that encourage transportation—land use integration in Delaware that apply to the municipal, county, regional, and state levels of government.[14] Sixteen implementation strategies for TOD and transit-ready communities are recommended for adoption.[15] This publication is perhaps the most relevant for Delaware, given its emphasis on creating transit-ready communities in areas of decentralized, largely suburban rural character. The IPA report reads:

> A trend of population growth and decentralization necessitates a proactive and aggressive approach to fostering transportation/land use integration in Delaware, especially in areas where growth is anticipated. Between the period of 2000 and 2030 Delaware's population is expected to grow by approximately 260,000 people; many are expected to live in Kent and Sussex Counties rather than the more urban New Castle County. Given current economic conditions and the collapse of the housing market, planners have the opportunity to get strong policies in place before the next housing boom.[16]

IPA also published in 2007, *Transit-Oriented Design: Illustrations of TOD Characteristics, A Working Paper*.[17] This research clearly defines important TOD success factors, provides intensive literature review of TOD, and includes input from Delaware officials on forward moving strategies based on TOD site visits outside of Delaware.[18] The key TOD success factors that the research outlined were:

- Quality Transit Facilities and Service
- Walkable—High-Quality Pedestrian Environment

[14] O'Donnell, Edward J. and Theodore A. Patterson. *Integrating Transportation/Transit Planning in the Overall Planning Process*. (Newark: University of Delaware, June 2009), 28.
[15] Ibid.
[16] Ibid., 15.
[17] William J. DeCoursey and Lorene Athey, Institute for Public Administration, and the Delaware Department of Transportation. *Transit-Oriented Design: Illustrations of TOD Characteristics, A Working Paper*. (November 2007). http://dspace.udel.edu:8080/dspace/bitstream/19716/3103/1/TODworkingpaper.pdf.
[18] Ibid.

- Destinations—Complete Communities with a Community Center and the Right Mix of Uses
- Compact—With the Highest Densities Closest to Transit
- Parking That Is Carefully Located, Designed, and Managed[19]

Detailed enumerations for each of the five above success factors were provided in the paper and warrant reader review.

Hollie Lund, in *Reasons for Living in a Transit-Oriented Development, and Associated Transit Use*, provides insight into why people are attracted to TOD sites.[20] The below table[21] is an excerpt from her paper, providing a framework of sorts for what planners should pay attention to when evaluating the *attractiveness* of a TOD site. Lund evaluated multiple metropolitan areas in California, but for the purposes of this research the *all sites* column is most important for reader review.

Table 1: Reasons for Living in a Transit-Oriented Development and Associated Transit Use

Overall Rank	Reason	All Sites	Bay Area	Los Angeles	San Diego
1	Type or quality of housing	**60.5%**	54.5%	55.7%	77.2%
2	Cost of housing	**54%**	38.2%	56.6%	43.6%
3	Quality of Neighborhood	**51.7%**	46.7%	59%	49.7%
4	Access to shops, services	**35.4%**	25%	42.5%	42.3%
5	Access to transit	**33.9%**	52%	19.3%	24.8%
6	Access to highway	**22%**	20.5%	21.2%	25%
7	Other	**7.6%**	5.5%	10.5%	4.1%
8	Recreational opportunities	**6.3%**	6.6%	7.1%	4.7%
9	Quality of Local Schools	**5.3%**	7.4%	4.7%	2.7%

Interestingly, the top four reasons why people choose to live in TODs have nothing to do with transit, but with *land use*, specifically housing and neighborhood type. This serves as a clear indication that mixed-use, traditional neighborhood design, streetscapes, and especially affordable housing are crucial characteristics of TOD sites that must be in place to ensure the success of the project.

The Transportation Research Board in *TCRP Synthesis 67: Bus Transit Service in Land Development Planning, A Synthesis of Transit Practice*, published in 2006, cites nine parameters on which to evaluate TOD sites. They are:

[19] Ibid., ii.
[20] Lund, Hollie, Reasons for Living in a Transit-Oriented Development, and Associated Transit Use, American Planning Association, Journal of the American Planning Association 72, no. 3, (July 1, 2006): 357-366, http://www.proquest.com/ (accessed October 1, 2009).
[21] Ibid., 361.

- Transit ridership
- Density
- Quality of streetscape design
- Quantity of mixed-use structures
- Pedestrian activity and safety
- Increase in property value and tax revenue
- Public perception
- Number of mode connections
- Parking configuration[22]

The Northern Illinois Regional Transportation Authority published *The Routes to Future Growth: Fostering Transit-Oriented Development in Northeastern Illinois*, which provides five key success strategies for TOD implementation:

- Creating a Vision
- Educating, Advocating, Facilitating
- Creating Partnerships
- Removing Obstacles
- Creating Opportunities[23]

The five strategies are enumerated in Appendix 1. The enumerations explain what local government, the development community, and the regional transportation authorities all can do to implement the strategies individually.

Robert Cervero, featured in the book *Incentives, Regulations, and Plans: The Role of States and Nation-states in Smart Growth* Planning, speaks about TOD in the United States, discussing U.S.

[22]Transportation Research Board, Federal Highway Administration. *TCRP Synthesis 67: Bus Transit Service in Land Development Planning, A Synthesis of Transit Practice*. (Washington DC: Transportation Research Board, 2006), 6.
[23] Northern Illinois Regional Transportation Authority, *The Routes to Future Growth: Fostering Transit-Oriented Development in Northeastern Illinois*, (Chicago: University of Chicago Library, February 1995), 8-11.

experiences with the following TOD implementation tools and strategies: 1) targeted infrastructure investment and supportive planning, 2) adaptive reuse, 3) central city redevelopment around streetcar lines, and 4) creative partnerships and co-financing.[24] Cervero advocates transportation-infrastructure investment in advance of demand, citing Arlington County, Va., Japan, and Stockholm, Sweden as places where preemptive investment has worked.[25] The U.S. mindset is to invest in transit only when population density reaches critical mass, yet Cervero advocates the opposite: make the initial transit investment and tailor the land use around the stop.

Adaptive reuse is suggested as an effective TOD urban-renewal strategy. Cervero mentions the Southside development located in Dallas, Tex., as a good example.[26] The new multi-use building includes 455 loft units accompanied by a coffee shop, grocery store, and dry-cleaner, all housed in what used to be a Sears Roebuck & Co. Catalogue Merchandise Center built in 1913.[27]

Cervero emphasizes creative partnerships and co-financing for TOD projects using the Oakland, Calif., example. The Fruitvale Transit Village project attracted $20 million in private investment from the Ford Foundation, Levi-Strauss Foundation, and PG & E Corporation.[28] Public-sector support was provided in part by the City of Oakland, Bay Area Rapid Transit (BART), and the Federal Livable Communities grant program.[29] In all, 20 sources were used to raise $100 million for project construction.[30] Later in this working paper, factors related to public-private partnerships will be examined to ultimately determine what crucial factors impact investment in TOD.

The Puget Sound Regional Council, located in Seattle, Wash., published a report on local TOD initiatives that defined the following key guiding principles for successful TOD:

- Compact, Mixed-Use Development
- Pedestrian-Friendly Design
- Parking and Access Management[31]

[24] Knapp, Gerrit-Jan, Huibert A. Haccoû, Kelly J. Clifton, John W. Frece, and Edward Elgar, ed., *Incentives, Regulations, and Plans: The Role of States and Nation-states in Smart Growth Planning* (Cheltenham: Edward Elgar Publishing Limited, 2007), 162-164.
[25] Ibid., 162.
[26] Ibid.
[27] Ibid.
[28] Ibid., 164.
[29] Ibid.
[30] Ibid.
[31] Puget Sound Regional Council, *Creating Transit Station Communities in the Central Puget Sound Region*, Seattle: Puget Sound Regional Council, June 1999, 17.

Compact, mixed-use development was defined as "a sufficient variety and intensity of land uses . . . provided within walking distance of the station facility."[32] Pedestrian-Friendly Design was defined as "building siting and orientation . . . designed to create an environment that is conducive to walking in the vicinity of the station facility."[33] Parking and Access Management referred to how "automobile and bicycle parking should be planned in a way that balances the needs of motorized travel, bicycling, and walking."[34] These broad principles are further defined by qualitative sub-factors of influence.

For the compact, mixed-use development principle, the following qualitative factors of influence were presented:

- Site and design transit station facilities to maximize development opportunities.
- Determine acceptable walking distances.
- Establish a range of complementary land uses within the station area.
- Concentrate commercial retail close to the station facility.
- Establish an employment base close to the station facility.
- Using gross vs. net density.
- Promote residential development opportunities near transit facilities.
- Establish density targets.
- Encourage infill and/or redevelopment of underdeveloped land.
- Encourage the mix of uses both within buildings and on adjacent sites.
- Discourage automobile-oriented land uses in the station area.
- Locate public buildings within the station area.
- Establish adequate park space in a station area.
- Consider the importance of land uses outside of the defined station area.
- Establish mixed-use targets.

[32] Ibid.
[33] Ibid.
[34] Ibid.

- Protect and preserve important natural features.
- Protect and preserve historic character.[35]

When *determining acceptable walking distances* for pedestrian-network interconnectivity the Puget Sound report instructs public officials to keep in mind the following:

- The most important influences on how far people will walk are whether the walkway system is direct and complete and the walk environment is enjoyable and safe.
- People will walk farther to transit stations that provide a very high level of transit service, such as to a light-rail facility.
- People will tend to walk farther between a station and residential or employment than they will to retail establishments.
- People will walk only very short distances (less than 500 feet) to transfer between travel modes (e.g., between car and bus, or bus and rail).[36]

With regard to *establishing a range of complementary land uses within a station area*, TOD sites should be both destinations and points of origin for trips.[37] Research shows that 25 jobs per gross acre support frequent, peak-period transit service—for a station area of 600 acres (approximately ½ mile walking radius), this means 15,000 jobs.[38] TOD is as much about place making as it is about connecting individuals to other employment or residential centers. Often provision of transit service in a given area is demanded based on concern over traffic and congestion, and evaluated only in terms of getting more people moving away from an area with greater efficiency. The goal must be to create interconnectivity so that individuals are drawn to the TOD for work, pleasure, or residence. The key to TOD in this sense is building community—creating places people want to be. Research indicates that a strong balance between housing and jobs should be struck; the Puget Sound report notes that "the number of jobs in the station area should not exceed the number of households by more than 3 to 1."[39]

Another qualitative factor of influence listed above referenced use of gross vs. net density calculations during TOD implementation. Gross density is "the total number of units (e.g., jobs, households, and population) divided by the total land area."[40] Net density is "the total units divided by the net land area, excluding roads, public open space, parking lots, environmentally

[35] Ibid., 21-28.
[36] Ibid., 21.
[37] Ibid., 22.
[38] Ibid., 23.
[39] Ibid., 24.
[40] Ibid., 23.

sensitive areas, and other land area that does not contain buildings."[41] Net density calculation is more useful for specific project sites, because "it deals only with the land that is available for development and represents how efficiently a specific site has been utilized."[42] Gross density is better applied to entire station areas or larger tracts, because "it more accurately captures how all land buildable and unbuildable contributes to the pedestrian environment and overall intensity of development."[43]

Continuing with the compact, mixed-use development principle, the Puget Sound Regional Council recommends *establishing density targets*; the following general guidelines are provided:

- Residential densities should approach 7-8 households per gross acre to support local bus service connections to a transit station. Household densities should reach, at minimum, 10-20 dwelling units per gross acre near a transit station facility.

- Employment densities of 25 jobs per gross acre will support frequent high-capacity transit service if employment is clustered close to the facility. A density of 50 jobs per acre is a preferred target for higher-frequency and high-volume service provided by light rail.

- Commercial uses with surface parking should have a floor area ratio (FAR) of .5 to 1; an FAR of 2 can be easily achieved with structured parking. Density is less important for commercial retail than is a mix of appropriate services.[44]

Few places in Delaware meet these high-density standards, so it is important to note that density targets, although a good idea in theory, need to be modified in Delaware to be more achievable.

The compact, mixed-use development principle lists five key evaluation questions that serve as baseline questions for planners to ponder when addressing TOD implementation:

- Are land uses complementary?

- Are uses linked by sidewalks or paths?

- Do uses create all day activity?

- Are uses within walking distance?

- Do buildings fit in with each other?[45]

[41] Ibid.
[42] Ibid.
[43] Ibid.
[44] Ibid., 24.
[45] Ibid., 28.

For the pedestrian-friendly design principle, the following qualitative factors of influence were presented:

- Design street right-of-way for pedestrian travel.
- Street plans and block size.
- Establish continuous and uninterrupted walking routes.
- Ensure safe, convenient, and frequent street crossings.
- Design intersections that balance pedestrian and auto movements.
- Accommodate cars in station areas.
- Locate building entrances close to public walkways.
- Orient commercial establishments based on their different needs.
- Design parking areas for pedestrian movement.
- Establish a coordinated system of bikeways.
- Provide attractive, safe, and convenient transit stops.
- Provide pedestrian amenities within the station area.
- Provide street trees, lighting, and weather protection.[46]

With regard to *street plans and block size*, gridded street patterns are emphasized as a strategy for ensuring integrated pedestrian access within TOD sites.[47] The Puget Sound report suggests that block perimeters average 1,200 feet.[48] On *accommodating cars in station areas*, the same applies. Gridded street patterns reduced vehicle miles traveled by 10-40 percent in small-block systems.[49] The goals and objectives of TOD are not simply to decrease use of automobiles in transportation systems, but also to increase the *efficiency* of automobiles in transportation systems.

[46] Ibid., 30-33.
[47] Ibid., 30.
[48] Ibid.
[49] Ibid., 32.

For the parking and access-management principle, the following qualitative factors of influence were presented:

- Carefully control the total supply of parking.
- Use parking charges to control demand for parking.
- Keep the size of surface lots small.
- Design and plan surface lots to convert to other uses over time.
- Encourage the development of parking structures.
- Encourage development on street-side edges of parking structures.
- Carefully plan and design park-and-ride lots.
- Locate parking lots behind buildings or in the interior of a block.
- Revision of parking requirements.
- Design parking lots and garages with the pedestrian in mind.
- Provide adequate bicycle parking.
- Encourage joint use of parking spaces.
- Support the creation of public community parking lots.
- Reduction of large parking facility impacts.
- Provide on-street parking on pedestrian streets.
- Ensure convenient access for transit vehicles.[50]

The success or failure of TOD depends largely on density, so land area must be used with maximum efficiency, not wasted on unnecessary surface parking. When surface parking is built, it is preferable to create on-street parking. On-street parking takes up about half as much space as do off-street parking spaces, which require drive aisles.[51] Parking issues are largely tied to local development restrictions that mandate a certain number of spaces per unit, etc. Parking requirements must be modified in TOD zones to allow for creative arrangements.

[50] Ibid,. 35-40.
[51] Ibid., 36.

With regard to *reduction of large parking facility impacts*, it is advisable to encourage construction of several small lots that serve park-n-riders as well as those travelling to the TOD site for commercial or leisure activities.[52]

Timothy Finn in *Transit-Oriented Development: West Palm Beach, Florida* provides a tiered framework for evaluation of TOD sites. Finn established mixed-use, high-density, and pedestrian-friendly design as the key fundamentals to TOD.[53]

Finn also outlines primary and secondary TOD criteria for measurement. The primary criteria are ridership increases, joint development, economic development, neighborhood revitalization, and affordable housing.[54] The *ridership increases* variable measures whether or not transit use at the TOD station is increasing or decreasing. The *joint development* variable measures the strength of public-private partnerships on transit investment and adjacent land development. *Economic development* measures the degree to which the area is growing (job opportunity, business growth, strength of consumer markets, etc.). *Neighborhood revitalization* is measured through how efficiently and equitably an area is mitigating urban blight and deterioration. The *affordable housing* variable measures whether or not low-to-medium income individuals and families can move to an area.

Secondary criteria include increased property and sales tax revenues, reduction of sprawl, and conservation of open space.[55] The *property and sales tax revenue* variable measures the extent to which a TOD site will boost government revenues. The *sprawl reduction* and *open space* variables address environmental and sustainable development goals with regard to whether or not the TOD negatively impacts natural resources.

For all the variables, three basic scores were given—above average, average, and below average. Under each score a brief explanation was provided for the rating.[56]

Conor Semler in *Transit-Oriented Development in the Face of Sprawl: A Study of Buffalo-Niagara Falls, New York* outlines transit proximity, mixed-use, density, road network, and intensity of development as 'feasibility factors' for TOD in the Buffalo-Niagara region.[57] Using this 'suitability criteria,' as he terms it, he evaluated 15 sites in the Buffalo-Niagara metropolitan area.[58] Semler defined transit proximity as the area extending within a quarter mile radius of a

[52] Ibid., 40.
[53] Finn, Timothy Peter. *Transit-Oriented Development: West Palm Beach, Florida [A Thesis Presented to the Faculty of California State Polytechnic University, Pomona]*. Pomona: California State Polytechnic University, 2006, 9-15.
[54] Ibid., 36.
[55] Ibid., 52.
[56] Ibid., 53.
[57] Semler, Conor. *Transit-Oriented Development in the Face of Sprawl: A Study of Buffalo-Niagara Falls, New York [A Research Paper Presented to the Faculty of the Graduate School of Cornell University]*. Ithaca: Cornell University, August 2007, 25.
[58] Ibid., 33.

transit station.[59] Using this area definition, he evaluated sites on the additional feasibility factors mentioned above. To assess mixed use, Semler uses Calthorpe's 1993 preferred mixed-uses table that lists the optimal breakdown of mixed uses in a given area for TOD success.

Table 2: Calthorpe's 1993 Preferred Mixed Uses

Use	Preferred Mix of Uses
Public	5%-15%
Core/Employment	30%-70%
Housing	20%-60%

[60]

For easier categorization using Calthorpe's framework, an additional table is provided that further defines the three uses established in the table above.

Table 3: Calthorpe's 1993 Land Use Classifications

Land Use Classification	TOD Classification
Unknown	-
Agricultural	NA
Residential	Housing
Vacant	-
Commercial	Core/Employment
Amusement/Recreational	Public
Community/Institutional	Public
Industrial	Core/Employment
Public	Public
Forest	Public

[61]

Semler maps the land uses in each TOD study area showing the mixed-use composition of each station area among residential, commercial, industrial, and public uses.[62] The uses are categorized using Calthorpe's framework, percentages of individual land uses in each TOD study area were calculated, and scores were assigned based on the quality of the land use mix within each study area.[63]

[59] Ibid., 27.
[60] Ibid.
[61] Ibid., 29.
[62] Ibid., 28.
[63] Ibid., 30.

For density, Semler used Calthorpe's framework again. Calthorpe proposes that TOD works best with average residential densities of 18 units per acre.[64] As a result, Semler created his scoring framework for assessing density as follows:

Table 4: Density Suitability Score

Density (dwelling unit/acre)	Suitability Score
0	0
0-3	1
3-6	2
6-9	4
9-13	5
13-16	8
16 and over	10

[65]

Semler notes in the "Future Research" section of his paper that employment density is a factor that should also be used in analysis to enhance the utility of the suitability evaluation framework.[66]

For the road-network factor, Semler defined three network classifications that were assigned different scores. Grid, hybrid, and curvilinear categories were defined, with the grid network rating being the highest and the curvilinear network rating being the lowest score possible.[67] Every TOD study area examined in Semler's study was scored with grid network status, so the variable was excluded from the study.[68]

Semler defined intensity of development essentially as demand for development.[69] This factor was measured by identifying areas where the most private-and public-sector investment for developments was taking place.[70]

Although not included in this study, at the end of his report Semler highlights that a "community activism" factor should be added to the suitability analysis in the future.[71] Although Semler does not elaborate on the definition of this factor or on how it might be quantitatively applied to study areas, one can only speculate that he is speaking to the tremendous impact that the public has on the success or failure of TOD. The public, meaning

[64] Ibid., 30.
[65] Ibid., 31.
[66] Ibid., 48.
[67] Ibid.
[68] Ibid.
[69] Ibid.
[70] Ibid.
[71] Ibid., 48.

planning commissioners, elected officials, citizens, interest groups, and the business community, must be engaged in the process from the beginning, both as advisors and as students.

Semler also proposes reversing the way we evaluate TOD by promoting transit-ready development. His framework and other frameworks start with existing transit stations, assessing the viability of establishing TOD at or near current transportation infrastructure. Semler proposes that future research and evaluation assess factors such as mixed use or density irrespective of existing transportation infrastructure, with the hope that such research could pave the way for defining where transportation infrastructure should be located, depending on existing and emerging land use concentrations in a given region.[72]

Cornell University researcher Evan Du Vall wrote a paper titled *Transit-Oriented Development: Three Case Studies*, published in August 2007, that retrospectively evaluates three TOD sites considered to be national success stories: 1) the Del Mar Station, Pasadena, Calif., 2) Willow Springs Village Center, Chicago, Ill., and 3) Orenco Station, Hillsboro, Ore.[73] Du Vall's rating system "creates a working definition of TOD. . . [and] determines how well these projects have facilitated station area success."[74] Du Vall's factors determining TOD success are:

- Street Patterns
- Station Area Parking
- Employment Density
- Housing Density
- Commercial Mix
- Self-Selection in Residential Choice
- Residents Reactions[75]

High-ranking street patterns are grid patterns that incorporate multi-modal integration of pedestrians, cyclists, transit riders, and drivers into an interconnected, highly-accessible environment.[76] Special emphasis is given to short street blocks to encourage connectivity.[77] To

[72] Ibid.
[73] Du Vall, Evan Matthew. *Transit Oriented Development: Three Case Studies [A Research Paper Presented to the Faculty of the Graduate School of Cornell University, Ithaca]*. Ithaca: Cornell University, August 2007.
[74] Ibid.
[75] Ibid., 14.
[76] Ibid.
[77] Ibid.

measure connectivity, Du Vall uses the Beta Index, a measure to calculate the connectivity of a road network by dividing the number of links by the number of nodes in a network.[78]

To measure station-area parking, park-n-ride facility vacancies were calculated to assess the utility consumers derive from such facilities. Here is the table that Du Vall used to score station area parking:

Table 5: Park-n-Ride Scoring

	Score	Site Vehicle Occupancy Percentages
	0	0-19%
Low	1	20-29%
	2	30-39%
	3	40-49%
	4	50-59%
High	5	60+%

[79]

Employment density is a factor that Semler previously noted as an important factor for TOD success, but in this paper Du Vall measures the variable.

Table 6: Employment Density Scoring

	Score	Jobs per Acre Ranges
	0	0-2
Low	1	3-4
	2	5-6
	3	7-13
	4	14-35
High	5	36+

[80]

For housing density, Du Vall cites research done by Pivo, Ohland, and Dittmar on the connection between housing density and transit.[81] They find that to maintain a bus route housing density must be between 7-12 dwelling units per acre; rapid buses and light rail require 20-30 dwelling units per acre to be feasible.[82] Therefore, Du Vall's housing density scoring table is as follows:

[78] Ibid., 17.
[79] Ibid., 20.
[80] Ibid., 21.
[81] Ibid.
[82] Ibid.

Table 7: Housing-Density Scoring

	Score	Dwelling Units per Acre
	0	Less than 7
Low	1	7-12
	2	13-19
	3	20-29
	4	30-40
High	5	41+

[83]

Du Vall's goal for the commercial mix variable is to "rate the ability for a resident to receive their basic needs within each TOD project."[84] The following table represents the simple scoring framework that Du Vall uses to evaluate the three case studies in the paper for commercial mix:

Table 8: Commercial-Mix Scoring

	Score	Commercial Mix
	0	No Commercial
Low	1	Retail Shops
	2	Retail Shops and Restaurants
	3	Retail Shops, Restaurants and Service Retail (example Dry Cleaners, Lawyer, Dentist)
	4	Retail Shops, Restaurants, Service Retail and Offices
High	5	Retail Shops, Restaurants, Service Retail, Offices and Entertainment

Self-selection of residential choice measures "the ability for professionals, small families, large families, and the elderly to live close to transit facilities."[85] The scoring table is as follows:

Table 9: Scoring for Self-Selection of Residential Choice

	Score	Housing Types
Low	1	Housing for Professionals (< 1 bedroom)
	2	Professionals and Small Families (2 bedrooms)
	3	Professionals, Small Families, Seniors (single story housing) or Large Families (≥ 3 bedrooms)
	4	Professionals, Small Families, Large Families, and Seniors (without assisted living)
High	5	Professionals, Families, Seniors (Assisted Care Housing)

[86]

[83] Ibid., 22.
[84] Ibid.
[85] Ibid., 23.

In May 2008 Proulx published *Expanding Options for Transit-Oriented Development: Supporting A Flexible Density Model*, which analyzes density as a factor influencing the success of TOD. Proulx asks whether "increased density is the most important factor in defining transit-oriented development or are other site conditions more important than increased density in determining transit-oriented development success?"[87] Proulx conducts a literature review of various TOD papers that discuss success factors for TOD and created the following matrix which shows a list of success measures cross listed among key authors who propose them in research documents.

Table 10: Matrix of Success Criteria

Measure of Success	Source					
	Massachusetts Smart Growth/Smart Energy Toolkit	Belzer, Autler 2004	Niles, Nelson 1999	TCRP, 2004	TCRP, 2007	Total
Higher Density	1		1	1	1	4
Mixed Use	1		3	1		5
Increased Ridership			1		1	2
Reduced Traffic					1	1
Thriving Commerce		2	1		2	5
Site Redevelopment					1	1
Efficient Use of Parking			1		1	2
Supportive Market Conditions	1			1		2
Political Leadership	2		1	1		4
Design Standards/Guidelines	2		2			4
Institutional Coordination				1	1	2
Permissive Regulatory Environment	1		1	1	1	4
Public Input				1		1
Incentives	1			1		2
Location		1	1			2
Livability		2	1	1	3	7
Efficiency		1			1	2
Zoning Flexibility			1			1
Transit Quality			2	1		3
Number of TODs			1			1
Value Recapture					3	3

[86] Ibid.
[87] Proulx, William R. *Expanding Options for Transit-Oriented Development: Supporting A Flexible Density Model [Submitted to the Graduate School of the University of Massachusetts Amherst]*. (Amherst: University of Massachusetts, May 2008), iv.

[88]

Based on the matrix results, one can see that density, although among the top key factors for TOD success, is not the most essential. Livability was highlighted as most important, followed by mixed-use and thriving commerce. Political leadership, design guidelines/standards, permissive regulatory environment, and higher density were all ranked equally in terms of impact on TOD success.

For his own analysis, Proulx focused the list, narrowing it down to the following enumerated factors:

- Increased Density
- Mixed Use
- Increased Ridership
- Reduced Traffic
- Thriving Commerce
- Site Redevelopment
- Efficient Use of Parking[89]

In *Transit-Oriented Development: Making It Happen*, Curtis, Renne, and Bertolini outline the following TOD success factors for evaluation related to state and regional government:

- Existence of a state/regional forum on TOD coordination
- Number of TODs that receive planning support under a state/regional forum
- Amount of funding that comes from state and regional governments for TOD
- Number, content, and quality of state and regional policies that facilitate TOD
- Percent of regional growth (housing, economic, and land consumption) occurring in transit precincts and TODs versus non-TOD areas
- Regional housing demand estimates for TODs

[88] Ibid., 5.
[89] Ibid., 9.

- Vehicle miles travelled in TODs versus non-TOD areas
- Existence of a TOD-monitoring program[90]

The three authors propose a complete table outlining a framework of TOD evaluation factors for consideration shown in Appendix 2.

In 2003 the Wilmington Area Planning Council (WILMAPCO) conducted a TOD analysis on Edgemoor, Del., a small community located roughly four miles southwest[91] of Claymont, Del., in New Castle County. The WILMAPCO analysis used the "EPA Smart Growth Index" model to assess the TOD potential of the Edgemoor site, given current conditions at the time. Below is a chart showing the various factors tested for in the WILMAPCO analysis:

Table 11: WILMAPCO TOD Scoring Variables

Key Indicators	Base	Scenario 1	Scenario 2	Scenario 3	Base vs. Scenario 3
Population density (population/sq. mi.)	7056.58	8632.71	8952.26	8952.26	26.9%
Jobs/housed workers ratio	0.08	0.48	0.45	0.45	462.7%
Land-use diversity	0.15	0.65	0.63	0.63	317.4%
Residential density (dwellings/acre)	9.64	9.64	9.66	9.66	0.1%
Multi-family housing share	58.90	58.90	58.52	58.52	-0.6%
Housing proximity to transit (avg. ft.)	581.16	568.35	585.43	568.31	-2.2%
Employment density (employees/acre)	4.74	24.14	24.71	24.71	421.6%
Employment proximity to transit (avg. ft)	549.27	877.72	911.40	334.17	-39.2%
Sidewalk completeness (percent)	22.12	68.65	22.12	68.65	210.3%
Walkability index	2.78	3.37	2.79	3.37	21.0%
Vehicle miles travel (per capital)	30.00	24.31	24.77	24.45	-18.5%
Vehicle trips (per capita)	3.20	2.54	2.57	2.56	-20.0%
Carbon monoxide (CO) (lbs/yr/capita)	617.12	500.32	509.90	503.31	-18.4%
Hydrocarbon (HC) (lbs/yr/capita)	79.74	64.62	65.86	65.01	-18.5%
Oxides of nitrogen (NOX) (lbs/yr/capita)	50.49	43.21	43.80	43.38	-14.1%
Carbon dioxide (CO2) (lbs/yr/capita)	8.58	7.54	7.63	7.57	-11.8%

[92]

In 2004 the Delaware Office of State Planning Coordination published *Better Models for Development in Delaware: Ideas for Creating More Livable and Prosperous Communities* in conjunction with the Conservation Fund. In this publication, the "Community Design" subcommittee of the then Livable Delaware Advisory Council presents a series of community-design core values that are included to provide a guiding vision about what communities should

[90] Curtis, Carey, John L. Renne, and Luca Bertolini, ed. *Transit Oriented Development: Making It Happen*. (Burlington: Ashgate Publishing, 2009), 249.
[91] Wilmington Area Planning Council. *Edgemoor, Delaware: Transit-Oriented Development Analysis*. Newark: WILMAPCO, February 2003. http://content.lib.utah.edu/cgi-bin/showfile.exe?CISOROOT=/FHWA&CISOPTR=1414&filename=1415.pdf, 7.
[92] Ibid., 11.

look like in Delaware. The core values and supporting explanations are listed in Appendix 4. This listing incorporates various aspects of TOD design with other Delaware-specific site-design priorities.

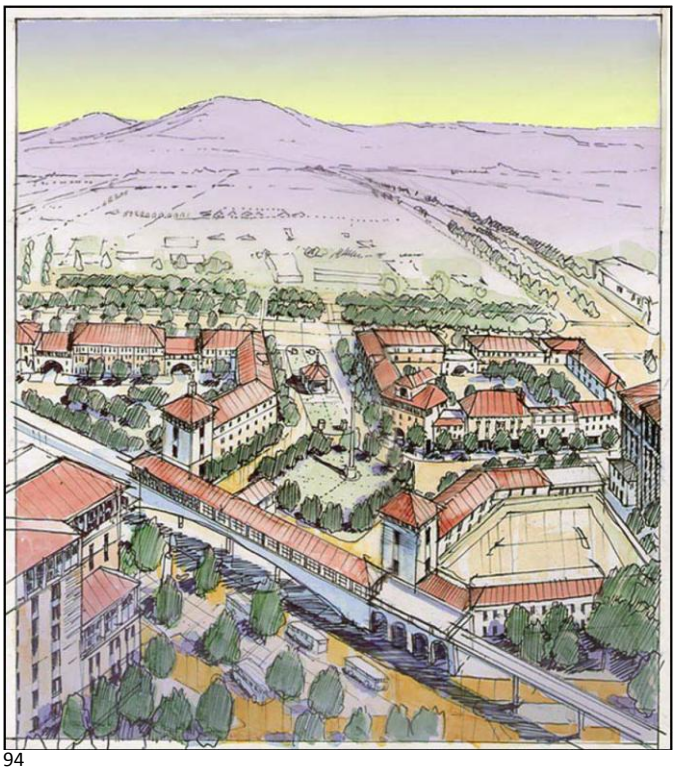
In November 2008 the University of Delaware's Institute for Public Administration published a briefing titled *Mid-Atlantic Area Express (MAAX): Exploring the Feasibility of a Bus Rapid Transit (BRT) System Within the Delaware Region*, which provides a simple evaluation framework with regard to transit feasibility in northern Delaware.[93] This briefing is a useful reference for assessing Delaware-specific transit ridership, transit demand, and system capacity.

Additional TOD sources are listed in the bibliography as these additional sources outline similar principles of TOD successes already mentioned in this paper.

[93] Scott, Marcia S., William DeCoursey, Todd Franzen. *Mid-Atlantic Area Express (MAAX): Exploring the Feasibility of a Bus Rapid Transit (BRT) System Within the Delaware Region*. (Newark: University of Delaware, November 2008).

SECTION 2: QUANTITATIVE TOD-SCORING FRAMEWORK FOR SITE EVALUATION

Delaware TOD is in its infancy. Currently no *real* TOD exists in Delaware as traditionally defined, although there are many exciting opportunities and partial examples. The closest example Delaware has is in Wilmington at the SEPTA R2/Amtrak station. Including the Wilmington station, the SEPTA R2 commuter-rail line features four train stations, all of which have TOD potential either through having some existing TOD attributes or by having potential for TOD to occur in the station area. Important public policy changes must occur at these sites in order for them to further develop and be established as TODs. The same goes for large-scale bus hubs in Delaware.



94

TOD is the synthesis of land use and transit in community design.

The following is the variable list for TOD site review. Special consideration was given to make this IPA framework relevant to unique Delaware circumstances. The framework design is intended to balance specific TOD site-design considerations with broader TOD policy goals for Delaware. Under each variable are sub-factors that define the several attributes associated with the variables. For each variable a rating will be assessed, a rating explanation will be provided, and recommendations for moving forward will be listed. One point will be awarded for each sub-factor that is deemed "satisfactory" based on site review. The sum of sub-factor points will be tallied as the overall rating. Listed below are the variables and sub-factors:

[94] California Department of Transportation, *Statewide Transit Oriented Development Study: Factors for Success in California [Final Report]*

- **Existence of a High Capacity/High-Volume Transit Station**

Any successful TOD starts with a functional transit stop. A satisfactory transit stop is one that has adequate trip frequency and service capacity to handle current and future service demand. A satisfactory transit stop is one that through trip frequency and service capacity is equipped for conversion into TOD. This variable will receive a 0 or 1 score depending on whether or not the transit stop is deemed satisfactory for a future TOD site.

- **Adequate Zoning**

  - Station Area Plans/Circulation Plans

  - Transit-supportive Zoning

  - Mixed-Use
    - Quantity/Quality of mixed-use structures
    - Vertical/Horizontal mixed use
    - Access to:
      - ✓ Food (grocery store, restaurants, farmer's market)
      - ✓ Open Space (parks, trails, baseball fields)
      - ✓ Entertainment (museums, malls, movie theatre, arts)
      - ✓ Healthcare (hospital, doctor's office, pharmacy)
      - ✓ Education (school, university, libraries)
      - ✓ Housing (apartments, assisted living, houses)
      - ✓ Economy (jobs, businesses, industry, office space)

  - Density

  - Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design.

  - Streetscape Design and Pedestrian Accessibility
    - Street Trees / Tree Medians / Sidewalk Buffers
    - Street Grid (discretionary use of Beta Index), Cul-de-sacs
    - Traffic-Calming:
      - Speed Bumps
      - Traffic Circles
    - Sidewalk Quality
    - Street Lights
    - Bicycle facilities (Racks, lanes, lockers)
    - Multi-modal Paths (does not include sidewalks)

  - Parking

- Minimum vs. Maximum Parking Standards
- Alternative Parking

The most important aspect to ensuring "adequate zoning" is ensuring that mixed uses are permissible. Mixed use is universally recognized as necessary for successful TOD. In *Incentives, Regulations, and Plans: The Role of States and Nation-states in Smart Growth Planning*, Knapp and others highlight ordinance and public policy auditing as a strategy to ensure that mixed-use can easily occur in areas favorable for TOD.[95] They state:

> The 20th century saw rising expectations for safety and space that many would argue led to over-regulation in Western society. Achieving new values in the city requires that we re-examine all of our rules—zoning codes, engineering standards, fire standards, and building codes—to be sure they are reasonable.[96]

But how do we get there? What factors impact the success of mixed use? Speaking about mixed-use developments in Germany, Weigandt highlights the Südstadt of Tübingen as a successful mixed use site.[97] He outlines the following factors as keys to the site's success:

- Its location at the edge of the central city, which is equally attractive for residential and commercial use
- The high demand for both residential and commercial space in the region
- Homogeneous land prices for residential and commercial use, fixed by the developer at a rather low level
- The high density of buildings, which reduces the costs of construction
- A strict application of planning laws that allow for mixed use on a small scale, including its designation as a "mixed-use area"
- The early attraction of commercial users ("pioneers") to the area, which has shaped its image, made it attractive for other firms, and increased the tolerance of residents for commercial users
- The principle of development from the lot flexibly adjusted to the specific needs of firms (for example, stores using the ground level of two adjacent buildings)

[95] Knapp, Gerrit-Jan, Huibert A. Haccoû, Kelly J. Clifton, John W. Frece, and Edward Elgar, ed., *Incentives, Regulations, and Plans: The Role of States and Nation-states in Smart Growth Planning* (Cheltenham: Edward Elgar Publishing Limited, 2007), 67.
[96] Ibid.
[97] Ibid., 89.

- The existence in the area of an office for a small, professional administrative group which is responsible for the implementation process, and active promotion of the concept to the public[98]

In total, Weigandt proposes the following principles and guidelines for effective mixed-use development implementation in Germany:

- Functional mix has to be a basic principle of urban planning in all cities as it is a necessary condition for sustainable development.

- Functional mix must not be isolated to specific areas but must be a basic guideline for the strategic planning of the whole city.

- In existing areas with a functional mix, it is essential to guarantee legally the structure of mixed use and to coach existing and potential companies.

- Urban brown land should, whenever possible, be developed with a mixed use. Its location makes it attractive for residents and a broad spectrum of companies. Consequently, for these sites, functional mixture is a particularly interesting concept for investors.

- New settlements at the fringe of cities should be developed as mixed use areas. This requires a long-term perspective and high flexibility of the functional and architectural design.

- In Germany, the planning of mixed-use areas does not require new laws and instruments. There are more legal possibilities than are realized by the market and planning practices. But to strengthen the programmatic character of functional mixture, a "diverse urban mixture" should be introduced into the federal building law as a basic planning goal.

- To facilitate planning and stabilization of mixed-use areas, the requirements of environmental regulations and building law have to be adjusted.

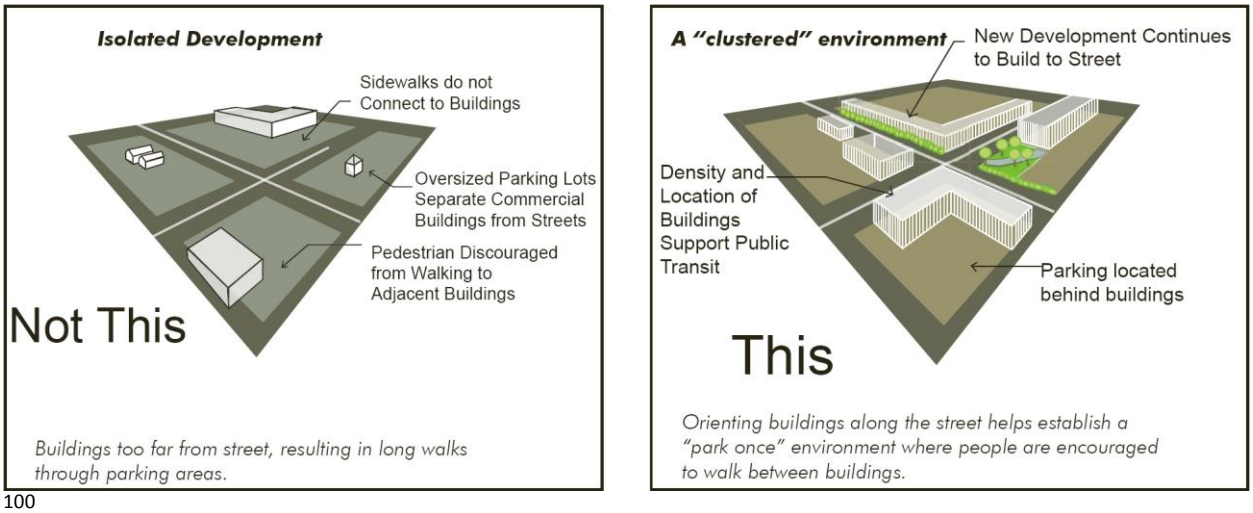
- Tax laws and subsidies for creating residential space or for creating jobs need to be changed in such a way that proximity of different functions becomes economically attractive for developers and investors. The current practice, to subsidize either residential or commercial use and thus to prohibit indirectly other kinds of use, is an obstacle to the development of mixed use areas.

- It is paramount for the success of mixed urban structures that a specific profile of the area is developed very early and that the development is actively marketed from the beginning.

[98] Ibid., 91.

- Mixed-use projects need consistent political support against short-term fluctuations of the market. It is, therefore, important to make local politicians responsible early in the process.

- Mutual tolerance of residents and firms is necessary, despite low levels of disturbances in mixed-use areas. Concerns and complaints should be avoided by giving and receiving advice and information early in the development process.[99]



[100]

Adequate zoning also allows site design flexibility while encouraging use of progressive design strategies. Writing on TOD and success factors, Greenberg raises the issue of fenestration and TOD zoning. Greenberg states that "windows are frequently required at ground level, and a certain percentage of glass is often specified. The intent is to 'enliven' the street by providing visual interest that encourages people to walk and take transit. Requiring fenestration goes hand in hand with avoiding blank walls on pedestrian streets."[101] Fenestration should not necessarily be *required* of developers arbitrarily via a new TOD zoning ordinance. Fenestration may be incorporated into zoning ordinance modification for the purposes of *incentivizing* creation of a streetscape conducive to maximum pedestrian activity and commerce.

A TOD site would benefit from zoning that defined minimum, rather than maximum densities. Proactive ordinances must be in place to spur the process. For instance, "the city of Woodinville, Wash., allows a 10 percent increase above the zoning district's base density for developments located within one-quarter mile of transit routes with frequent service."[102] Site-

[99] Ibid., 98-99.
[100] Calgary, The City of, *Transit Oriented Development: Best Practices Handbook*, (Calgary: Land Use Planning and Policy Department, January 2004), 12.
[101] Dittmar, Hank and Gloria Ohland. *The New Transit Town: Best Practices in Transit-Oriented Development*. (Washington: Island Press, 2004), 72.
[102] Regulatory Barriers Clearinghouse, "Transit-Oriented Affordable Housing," *Breakthroughs* Volume 8, Issue 1, (Jan 2009). http://www.huduser.org/rbc/newsletter/vol8iss1_1.html.

design allowances must be in place to give developers the prerogative with regard to street width, minimum setbacks, building height, etc.

- **Congruence with Regional Land Use Plan**
  - Comprehensive Plan (municipal, county)
  - Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)
  - Local-Area Plan
  - Strategies for State Policies and Spending
  - Intergovernmental Coordination

A TOD proposal must match a regional growth strategy that is universally endorsed by all stakeholders. The county or town comprehensive land use plan, the regional transportation plan, the long range transportation plan, Department of Transportation priorities and policies, and the metropolitan planning organization interests must all be in line for a successful TOD to occur. In *Regulations Shape Reality: Zoning for Transit-Oriented Development*, Ellen Greenberg concludes that "states with strong local planning traditions and mandatory consistency between local comprehensive plans and development regulations used policy documents as well as more focused development regulations to foster transit-oriented projects."[103]

In Denver, Colo., effective local land use planning has played an instrumental role in the success of TODs. Strategic regional land use plans such as *Blueprint Denver*[104] and *Metro Vision 2020*[105] featured a number of TOD-focused goals, effectively putting TOD front and center as a serious public transportation priority. This paved the way for TOD area planning and transit-ready development projects in Arvada, Colo., Englewood, Colo., and Boulder, Colo.[106] Arvada, Colo., created the *Arvada Intermodal Transit Village Concept Plan* in preparation for further TOD and transit ready development as the locality prepares for a future train station to the north.[107]

Station-area plans, such as what the city of Arvada, Col. created, lead to successful TODs, because they identify strategies for equipping a certain zone with the facilities or regulatory incentives needed to attract TOD projects. Station-area plans "function as scripts for guiding public and private investments in and around transit stops."[108]

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[103] Ibid., 59.

[104] Denver, City of. *Blueprint Denver: An Integrated Land Use and Transportation Plan*. (Denver: City of Denver, 2002), http://www.denvergov.org/planning/BlueprintDenver/tabid/431883/Default.aspx.

[105] Denver Regional Council of Governments. *Metro Vision 2035 Plan*, (Denver: DRCOG Policy Development and Communications, Dec. 19, 2007), http://www.drcog.org/index.cfm?page=PublicationsforRegionalPlanning.

[106] Murphy, Steven. *Transit-Oriented Development in the Mountain West: A Case Study of Colorado: [Professional Report]*. Berkeley: University of California Berkeley, Department of City and Regional Planning, May, 27, 2003.

[107] Ibid.

[108] Transit Cooperative Research Program and Federal Transit Administration. *Transit-Oriented Development and Joint Development in the United States: A Literature Review*. Number 52. Subject Area: VI Public Transit. Responsible Senior Program Officer: Gwen Chisholm. (October 2002). http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rrd_52.pdf, 16.

Key components of TOD-friendly station-area plans, as defined in a literature review conducted by Gwen Chisholm, include the following:

- *Results of a market feasibility study*. According to the Puget Sound Regional Council (1999), local governments are usually best positioned to perform station-area market analyses, though transit agencies sometimes are able to conduct such assessments just as well.

- *A physical plan for streets, pathways, utilities, mitigations and community enhancement.* Some observers recommend establishing a capital-improvements program that clearly denotes public commitments and responsibilities for physically supporting TODs.

- *A land use plan*. In addition to being prescriptive, the plan should identify specific steps that need to be taken to create the densities and land use mixes necessary to support and sustain future transit services.

- *A staging plan*. Land use planning tends to be spatial in nature; however, attention must also be given to the phasing of major improvements over time, specifying who will do what and when.

- *Regulatory and fiscal incentives*. Good station-area plans not only lay down the rules but offer incentives, such as tax abatement or density bonuses that reward developers for actions that support TOD.[109]

The below table outlines the station-area-planning process, defining who does what and when. This provides stakeholders with a checklist of sorts on how to complete a station-area-planning process for a potential TOD site. Completing an effective and detailed station-area plan ensures TOD success.

[109] Ibid., 16-17.

Table 12: Responsibilities in the Station-Area-Planning and Development Process[110]

	Government	Citizens	Transit Agencies	Developer
Preliminary Planning	-Coordinate input on alignment selection and alternative station locations	-Participate in station-siting decisions	-Evaluate alternate alignments and station locations	-Provide early input regarding potential development opportunities
Station-Area Planning	-Mobilize the local community -Lead station area planning -Incorporate public and transit agency input	-Actively participate in all phases of planning -Identify local impacts and concerns	-Support station area planning with technical information -Purchase necessary land and right-of-way	-Engage actively in the station-area-planning process -Review economic analysis and station-area opportunities
Implementation				
A. Design and Build station	-Issue permits for station facility -Focus public input	-Participate in station design	-Design and construct stations -Build auxiliary facilities to support station	-Review land acquisition needs
B. Revise regulatory system	-Audit and revise regulations -Simplify permit process	-Review and provide input to regulatory changes	-Assist with code revision and analysis -Build infrastructure to mitigate impacts	
C. Fund and build improvements	-Build supporting infrastructure -Secure funding and determine level of mitigation	-Help set priorities		-Identify current regulatory problems and propose incentives -Contribute to mitigation of development impacts
D. Undertake public/private development	-Institute incentive programs -Help create a development authority -Work with lending institutions to improve financing -Construct joint-use parking	-Coordinate efforts between local business groups and developers	-Seek joint development by selling or leasing unneeded land -Lease or sell air rights over parking	-Assemble land for development -Seek financing -Design and build development

- **Public Support**

[110] Puget Sound Regional Council, *Creating Transit Station Communities in the Central Puget Sound Region*, Seattle: Puget Sound Regional Council, June 1999, 13.

- Design Charettes
- Outreach Education

Public support is necessary for any TOD site to be successful. For TOD to occur, prior policy commitments must be agreed upon by the business, government, and citizen stakeholders in the community. The Arvada, Colo., case demonstrates strong public commitment to TOD. In cooperation with Denver, the city of Arvada invested approximately $20 million dollars to purchase and clear land to make available for private sector TOD projects.[111]

Often, citizen stakeholders are hesitant to support increased density due to concern over higher traffic, property value, new citizens moving into the area, and mixed uses. Design charettes should be held to bring the public into the process, so that the community makes the TOD a success together. Front-end public involvement in the planning process is necessary to keep the public engaged in decision-making throughout, rather than having a large crowd protest the proposal at the final approval stage. The CityCenter TOD located in Englewood, Colo., was bolstered by commitment from the government to locate public facilities at the TOD site. Government schools, libraries, court houses, recreation centers, and administrative buildings all bring people to a TOD site, making it more viable. When such public commitments and investments are used in ways that enhance community and the quality of life of citizens directly, public support will be strong.

- **Public-Private Partnerships**
  - Public-Private Infrastructure Investment
  - Private Property Acquisition
  - Property-Owner Support
  - Adequate Market Demand
  - Fast-Track Review Processes
  - Regulatory Incentives
  - Tax Incentives
  - Neighborhood or Destination Retail

Public-private partnerships are vital to the ultimate success of a TOD. Often, under normal market conditions, TOD sites are not feasible for private sector investment. Government agencies at all levels must make connections with the business community to create incentives-based TOD.

The Urban Land Institute's *Developing Around Transit: Strategies and Solutions That Work* reports that developers assess the following when evaluating whether or not to invest in a potential market opportunity for transit-supportive infill development:

- The community's history of and openness to development around transit

[111] Griffin, Kenneth W. *Building Type Basics for Transit Facilities*. (New Jersey: John Wiley & Sons Inc., 2004), 55.

- The transit and planning agency's commitment to assisting development around transit
- The flexibility of local codes and regulations as they pertain to mixed-use development, parking requirements, and other key issues involved in developing in transit districts
- The potential availability of creative financing assistance from the city or transit agency
- The degree to which district design standards, planning guidelines, and planned public investments are likely to achieve an attractive, friendly, and walkable context for development[112]

A crucial aspect to ensuring *a planning agency's commitment to assisting development around transit* is use of fast-track development review processes. The city of Boulder, Colorado minimizes discretionary review of projects "conforming to design and development standards"[113] within mixed-use districts. Although the Boulder policy is for mixed use districts the same principle could be applied to TOD districts. Dittmar (2004) reports that approval processes in Boulder were reduced from 3-4 years to 4-6 months.[114] A planning agency can also allow developers to forego Traffic Impact Studies to further streamline the approval process. On tax incentives and lower fees, Schneider (2004) states that "through tax exemption thousands of housing projects with affordable prices have been attracted to transit-oriented locations."[115]

The city of Portland, Ore., exempts TOD sites from property taxes. Regulatory Barriers Clearinghouse reports that developments with 10 or more units are eligible for the 10-year property tax exemption provided they meet the following affordability requirements set by the Portland city code:

- Twenty percent of rental units should be affordable to households earning no more than 60 percent of the area median income (AMI) or 10 percent should be affordable to households earning no more than 30 percent of the AMI.
- The rental units are to remain affordable for the duration of tax exemption plus an additional five years thereafter.

[112] Dunphy, Robert T., Robert Cervero, Frederick C. Dock, Maureen McAvey, Douglas R. Porter, and Carol J. Swenson. *Developing Around Transit: Strategies and Solutions That Work*. (Washington DC: Urban Land Institute, 2004), 89.
[113] Dittmar, Hank and Gloria Ohland. *The New Transit Town: Best Practices in Transit-Oriented Development*. (Washington: Island Press, 2004), 65.
[114] Ibid.
[115] Ibid.

- For-sale units should be sold to households earning no more than 100 percent of the AMI for a family of four.[116]

A Puget Sound Regional Council report on creating transit-station communities outlines five key economic success factors for TOD.

- *A strong overall market.* A stronger market for development, particularly higher density residential and office space, will help create the critical mass of development at station area locations.

- *The locational advantages of each station area.* These advantages are carefully considered by potential investors, and successful development is focused at those station areas with multiple advantages, including good auto access, as well as transit access.

- *Land use and transportation planning coordinated at the regional and local levels.*

- *Land use regulations that permit higher density residential and commercial development at station areas.*

- *The public sector actively involved in development partnerships with the private sector.* Public-sector actions can include investment in pedestrian and transit improvements, land assembly, site preparation, and development subsidies.[117]

The same report provides a checklist of actions local government can take to actively promote TOD. The following baseline components for a TOD marketing strategy were listed as:

- Preparing a regional demographic and economic forecast that is broken down to the corridor or station level

- Establishing supportive intergovernmental agreements

- Working with decision-makers to draft enabling legislation to support transit-oriented development

- Writing model policy and codes for adoption by local governments

- Supporting public relations and advertising to promote desired projects

- Removing regulatory barriers from existing local codes

[116] Regulatory Barriers Clearinghouse, "Transit-Oriented Affordable Housing," *Breakthroughs* Volume 8, Issue 1, (Jan 2009). http://www.huduser.org/rbc/newsletter/vol8iss1_1.html.
[117] Puget Sound Regional Council, *Creating Transit Station Communities in the Central Puget Sound Region*, Seattle: Puget Sound Regional Council, June 1999, 47.

- Investing public dollars strategically to effect change, including infrastructure and utilities
- Removing other barriers, such as derelict buildings, unkempt properties, and crime
- Providing on-going advertising and public relations efforts to publicize successful transit-oriented developments
- Conducting educational programs at the local level for lenders, developers, and others[118]

In *Financing Transit-Oriented Development*, Parzen and Sigal define four key fiscal factors for TOD success: increasing certainty, enabling public investors to capture the value of public investment, structuring the deal, and addressing place and node: financing TOD's distinctive components.[119]

Increasing certainty refers to the risk that private sector investors face when contemplating TOD projects. To increase certainty, the authors suggest that planners institute a regulatory and permitting environment that, from the very start, provides developers seeking approval for TOD projects with an easy, flexible, and time-efficient approval process.[120] Parzen and Sigal also highlight the need to partner with large, experienced development firms on TOD projects.[121] Often smaller firms advocate for and seek to build TOD projects, yet they have difficulty accumulating capital for projects, given their size and, subsequently, the increased risk investors face with lending to them.[122]

Mixed-use, high-density projects can, at times, face public resistance due to citizen concern over traffic, property values, or detriment to community character. In order to bolster public confidence, private firms with TOD proposals must demonstrate that they have vision and an organized business plan outlined for their project.[123] Front-end public investment in TOD projects can spur private sector investment by establishing a higher level of trust, that public actors will make good on promises made.[124] The government is proving to the private sector that they will follow through with transit infrastructure improvements.

Enabling public investors to capture the value of public investment refers to two key TOD success factors: 1) educating and garnering support from the community for a TOD project and 2) maximizing the public utility gained by a TOD investment through aggressive efforts in

[118] Ibid., 46.
[119] Dittmar, Hank and Gloria Ohland. *The New Transit Town: Best Practices in Transit-Oriented Development*. (Washington: Island Press, 2004), 85.
[120] Ibid., 87.
[121] Ibid.
[122] Ibid.
[123] Ibid., 88.
[124] Ibid.

structuring public-private partnership agreements.[125] TOD necessitates proactive governing, which requires public champions of TOD to consistently push the process upward and onward.[126] This public advocacy must foster TOD preparation and implementation strategies. Public-private partnerships work better when TOD projects are phased because this produces early cash flows.[127] Parzen and Sigal explain:

> A project that either creates a neighborhood or transforms it, attracting new investments and people, will tend to have much lower value—and lower returns—in the beginning than it will several years down the road. TODs often test new markets, either through design or through location. Design innovations include the development of higher density housing in areas that traditionally have had only single-family homes; untested locations include underutilized areas in suburban downtown and industrial brown field sites.[128]

To improve the public utility of public-private partnerships the authors also suggest cultivating new and special interest equity investors.[129] The authors cite a 2002 announcement from the Federal Realty Investment Trust, ending their eight-year-old program that targeted mixed-use town center developments for land acquisition and development as a sign of dwindling sources of investment for innovative development projects.[130] The reasoning for such a move was that "mixed-use urban-style projects require too much investment up front, but pay off only gradually, which does not align well with the objectives of most real estate investment trusts' shareholders for steady earnings and a growing dividend."[131]

Addressing place and node is crucial to financing TOD's distinctive components. Financial commitments should be focused on creating place, developing a main street, and fostering a vibrant downtown square.[132] Housing diversity and affordability are important as their existence ensures more consumer activity occurring at different times of the day.[133]

In *Transit-Oriented Development: Prospects for Delaware*, O'Donnell, Skolnik, and Temko identify several government policies and programs that help finance TOD, including tax-increment financing, height bonuses, parking waivers, streamlining approval processes, permit-fee reductions, liability insurance underwriting, and tax credits.[134]

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[125] Ibid., 90.
[126] Ibid.
[127] Ibid., 93.
[128] Ibid.
[129] Ibid., 94.
[130] Ibid.
[131] Ibid.
[132] Ibid., 101.
[133] Ibid.
[134] O'Donnell, Edward J., Gilad Scholnick, and Ezra Temko, Institute for Public Administration, University of Delaware. *Transit-Oriented Development: Prospects for Delaware [PowerPoint Presentation]*. April 16, 2008. Interagency Meeting – Blue & Gold Club, Slide 32.

- **Fully Integrated Transportation System**

Biking facilities, pedestrian networks, mass-transit routes and stops, roadways, and park-n-ride facilities must be linked into a seamless network orchestrated for time efficiency, interconnectivity, and convenient cross-system transfers.

A key factor to creating multi-modal networks is to be sure that available parking does not undermine the network, but enhance it. One way to address these issues is through zoning codes that define the "rules of the game" with regard to parking. "The city of Minneapolis, Minnesota, zoning code allows reduced parking (up to 10 percent) for multifamily dwellings located within 300 feet of a transit stop."[135] Another example in Los Angeles County, California, allows a "40 percent reduction in parking requirements for new residential developments in certain TOD districts."[136] Boulder, Colo., worked with private developers to construct a mixed-use parking garage with retail commercial stores on the ground floor.[137]

[135] Regulatory Barriers Clearinghouse, "Transit-Oriented Affordable Housing," *Breakthroughs* Volume 8, Issue 1, (Jan 2009). http://www.huduser.org/rbc/newsletter/vol8iss1_1.html.
[136] Ibid.
[137] Murphy, Steven. *Transit-Oriented Development in the Mountain West: A Case Study of Colorado: [Professional Report]*. Berkeley: University of California Berkeley, Department of City and Regional Planning, May, 27, 2003.

SECTION 3: TOD SITES IN DELAWARE

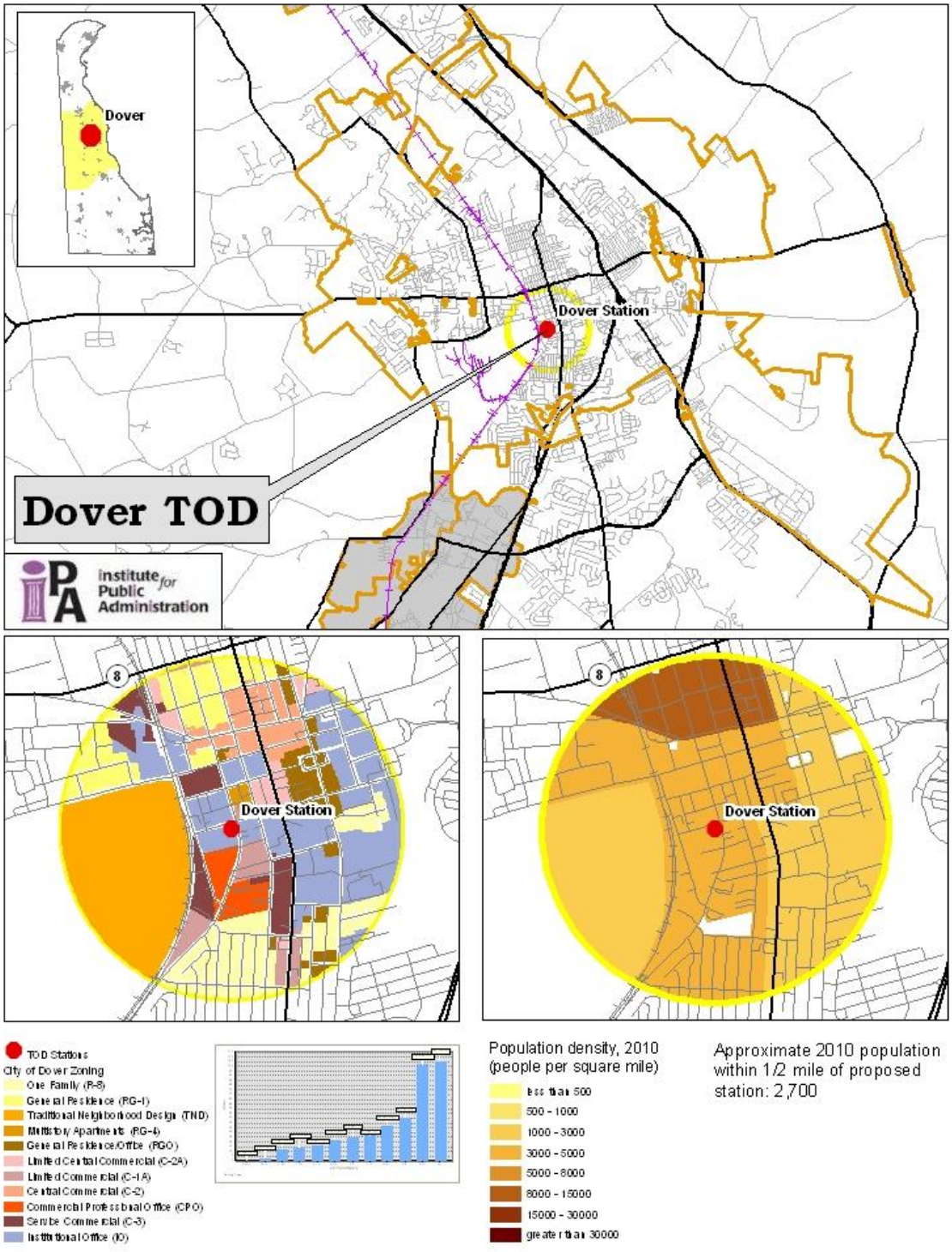
This section provides individual evaluation of potential Delaware TOD sites. The evaluation will use the framework established above in Section 2. Sites evaluated include:

1) Dover DART Bus Hub Station
2) Newark Commuter-Rail Station
3) Wilmington Commuter-Rail Station
4) Claymont Commuter Rail-Station
5) Churchman's Crossing Commuter-Rail Station
6) Potential Edgemoor Commuter-Rail Station

For reader reference, maps showing the potential sites are attached in the appendices. Commuter-rail station locations in Delaware are listed in Appendix 5. Appendix 6 shows the Edgemoor TOD site area. Appendix 7 shows the Water St. Bus Transfer Station located in Dover, Del.

Dover DART Bus Hub Station

Total Site Evaluation Score: 9



Zoning and land use data courtesy of City of Dover. Base data courtesy of DataMIL.

Existence of a high capacity/high volume transit station (rail, bus, BRT, metro, street car, etc.)	**1**

The future growth potential of the Dover DART TOD site will be influenced by development of downstate commuter rail operations. If light rail is extended to Dover, the Dover DART bus hub is located very close to the rail line—a perfect location for TOD.

Land use policy and market conditions will also impact the Dover DART TOD potential. The city's ability to focus infill and downtown high-density, mixed-use development into the Dover area will drastically increase the potential and success of any Dover TOD projects. The Eden Hill mixed-use development underway is the most prominent effort currently underway in the station area around the proposed bus hub.

Recommendations Moving Forward

1) *The community-led planning approach for the Dover Bus Hub planning area should move forward in a way that is collaborative and inclusive. A resulting plan for implementation should include clear timelines for TOD policy enhancement and a workable framework for creating TOD that incentivizes private sector buy-in.*

Adequate Zoning	**4**

The city of Dover is incorporating sustainable policies into current code to incentivize mixed-use development in the downtown area. Mixed-use zoning exists through much of downtown Dover.

Sub-Factors

- *Station Area Plans/Circulation Plans (1)*

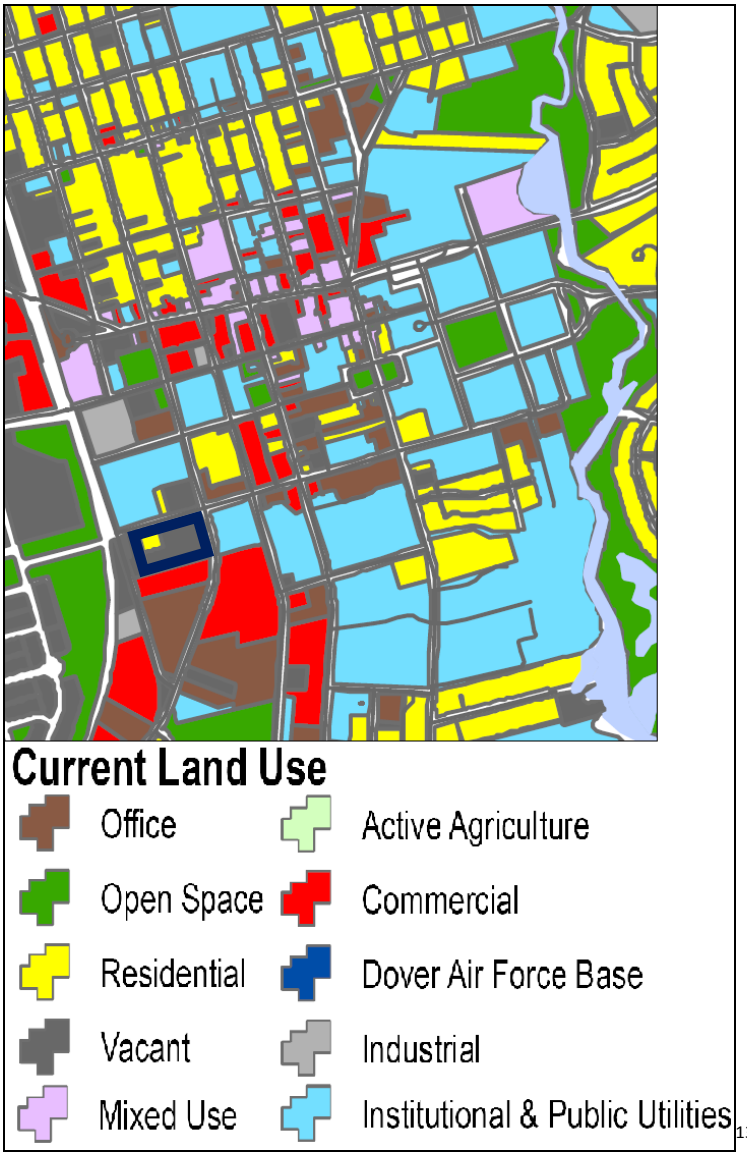
  The Dover/Kent County MPO, City of Dover, Downtown Dover Partnership, and other community members are preparing to facilitate a community planning process in Dover for the new Dover DART Bus Hub to be located extremely close to downtown rail tracks.

- *Transit-Supportive Zoning (0)*

  The Dover zoning map does not have transit-supportive zoning districts defined in the Dover bus hub station area.

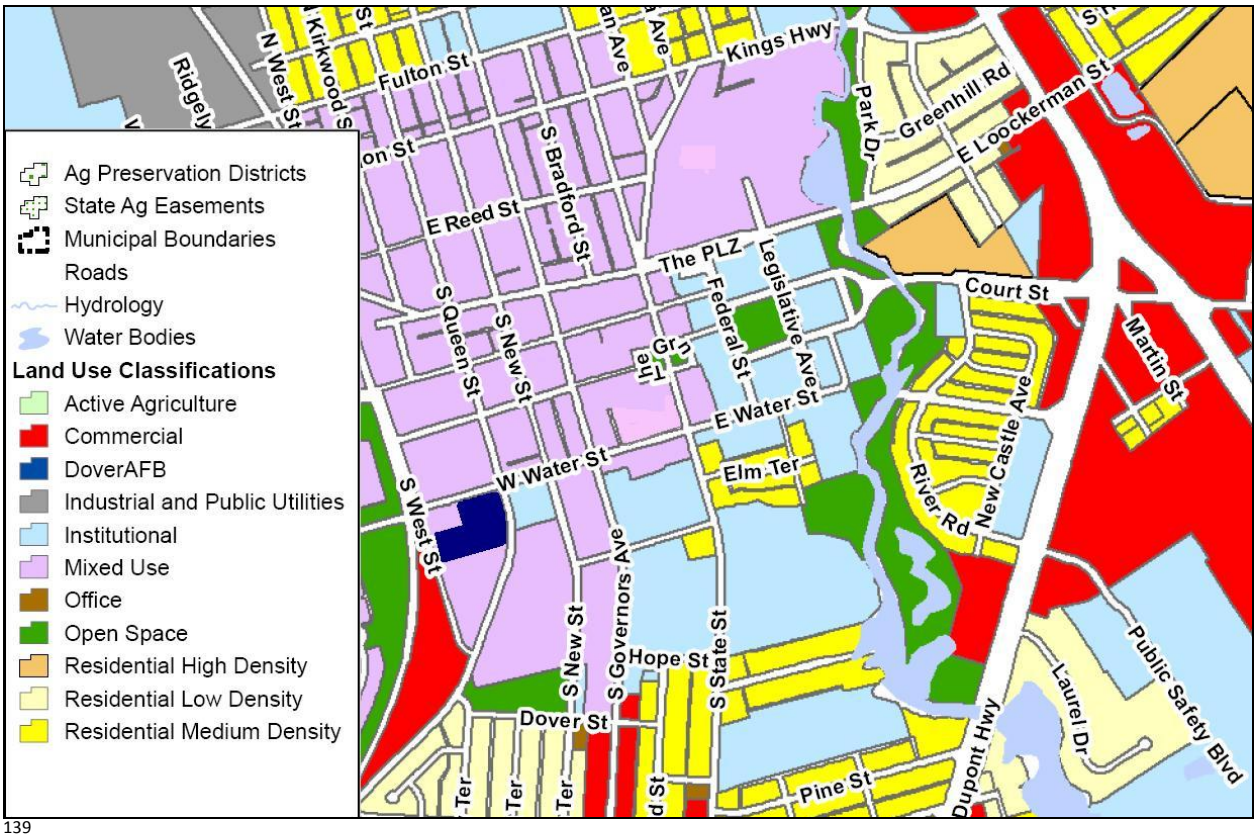
- *Mixed Use (1)*

Dover has mixed-use zoning districts included in code. Below are two maps showing the current zoning breakdown in the bus hub area derived from the City of Dover Comprehensive Plan.



[138]

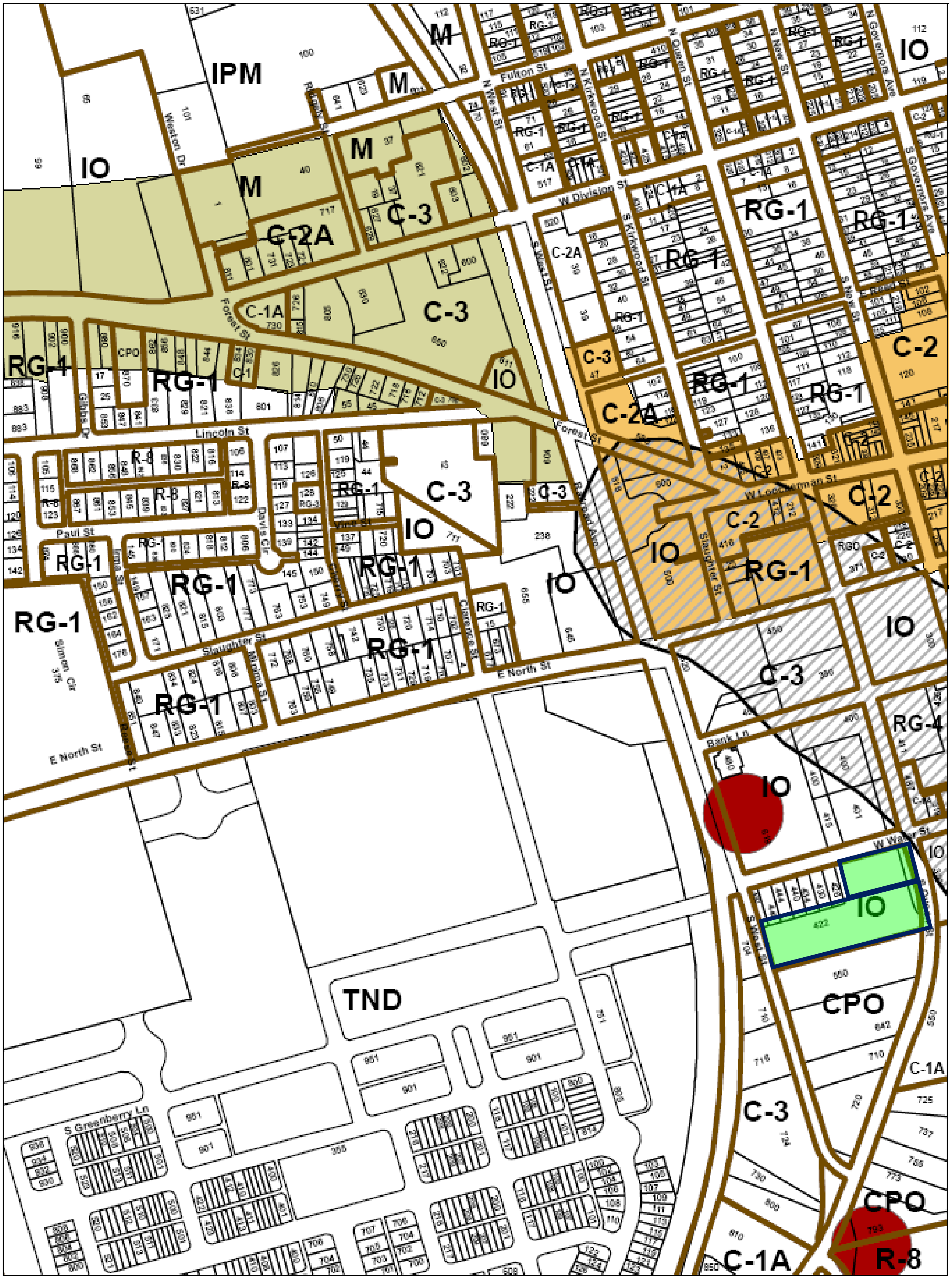
[138] Dover, Del., City of. *The Dover Plan: From the People, For the People [City of Dover, Delaware 2008 Comprehensive Plan]*. Dover: City of Dover, Department of Planning and Inspections. April 24, 2009. http://www.cityofdover.com/media/documents.

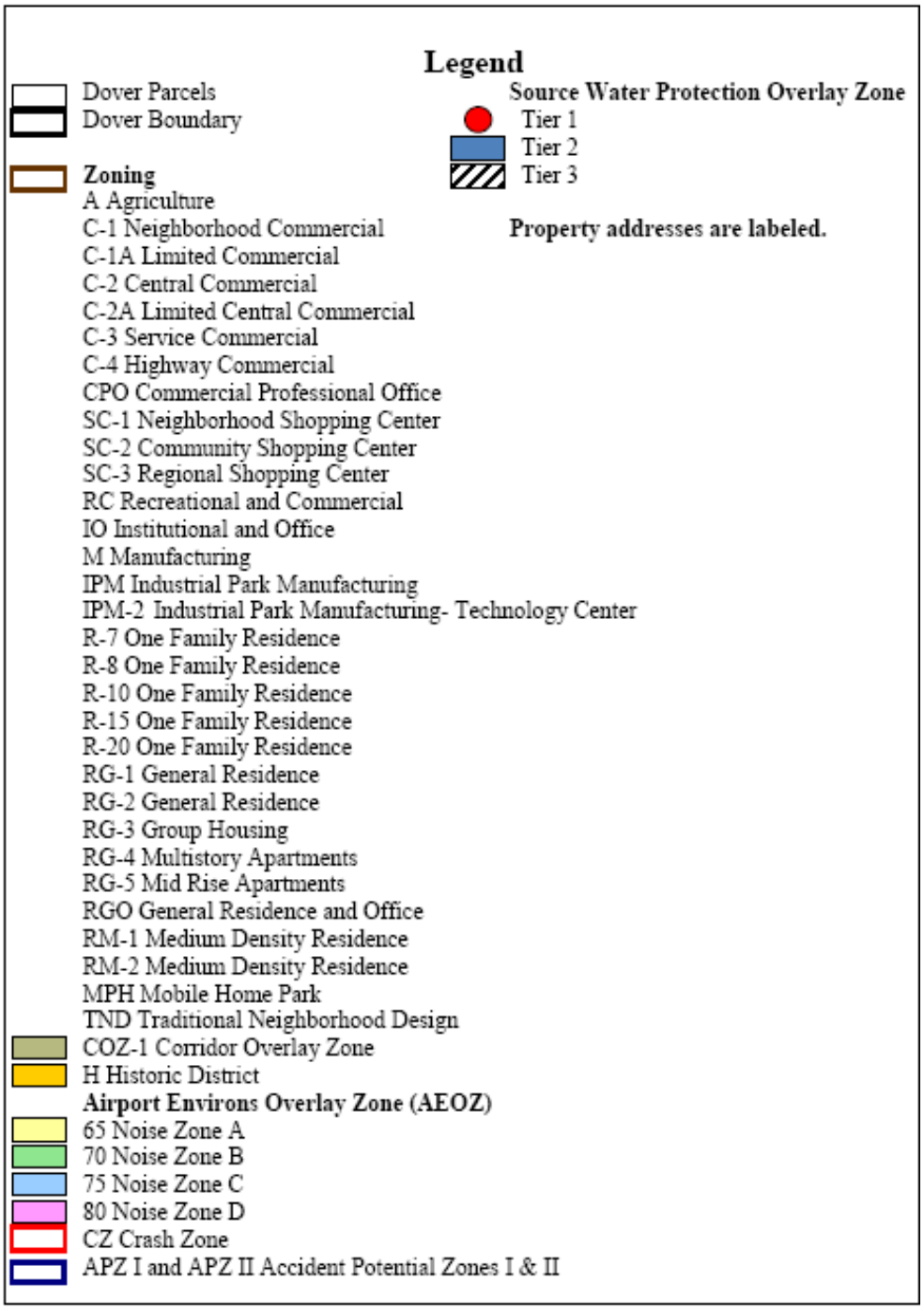


139

The following map shows the current zoning map for the City of Dover with the future Dover DART Bus Hub site outlined in blue.

[139] Ibid., Map 12-1.

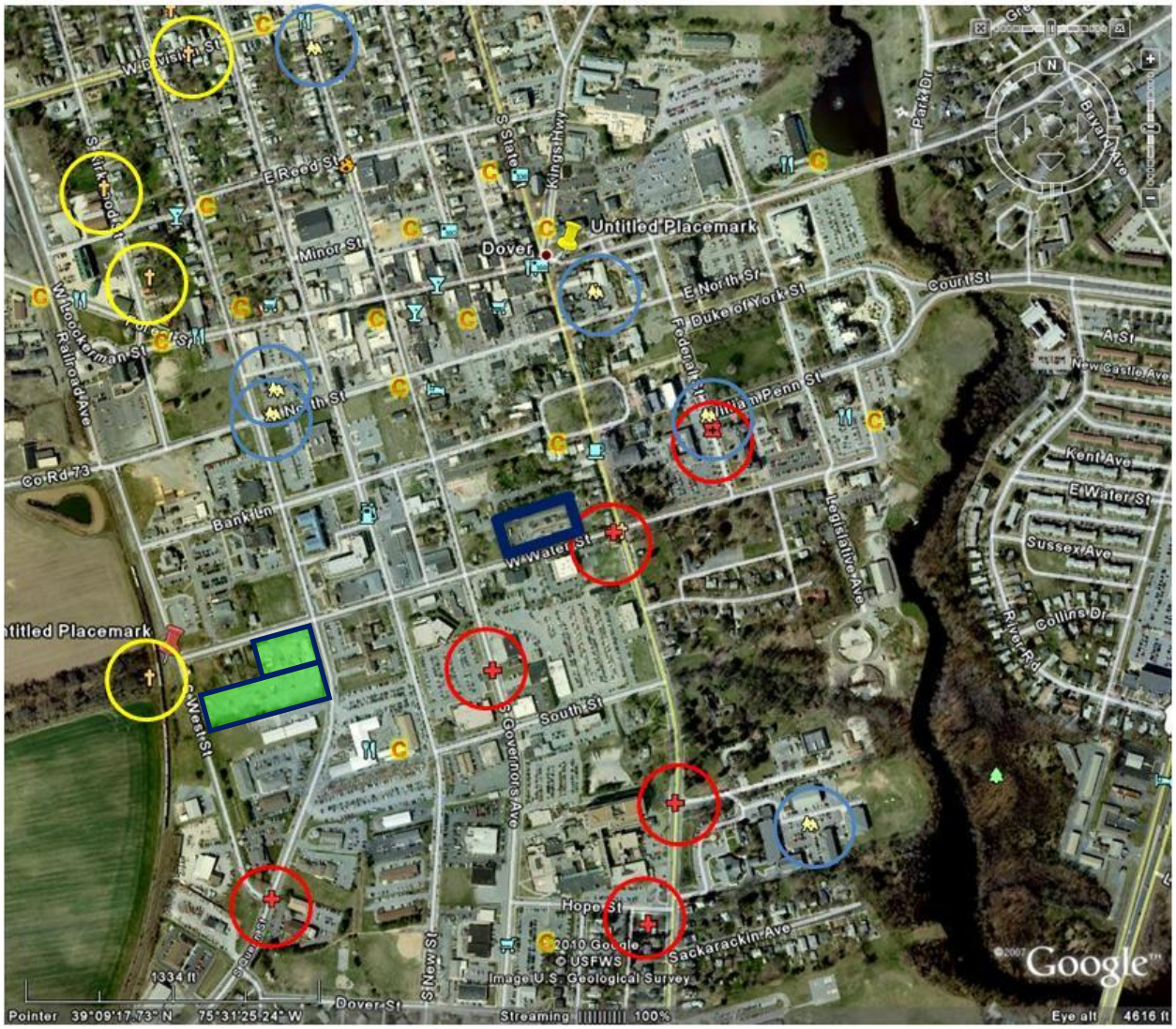

IPM
IO
M
C-2A
C-3
C-1A
RG-1
R-8
CPO
C-2
RG-4
TND
C-1A
Forest St
Lincoln St
Paul St
Slaughter St
E North St
W Division St
W Loockerman St
Bank Ln
W Water St
S Greenberry Ln
Fulton St
N Queen St
N New St
N Governors Ave
S Governors Ave
S West St
S Kirkwood St
N Kirkwood St
Weston Dr
Gibbs Dr
Davis Cir
Clarence St
Simon Cir



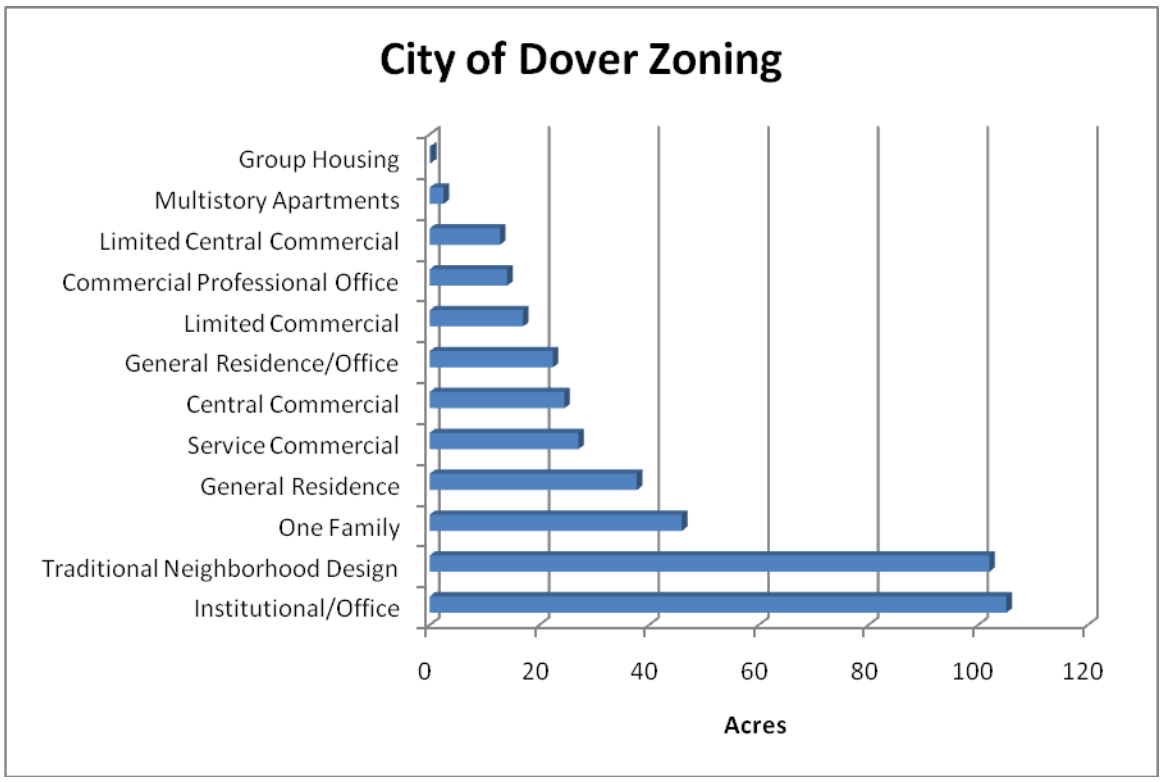
[140]

- Quantity/quality of mixed-use structures: The below aerial map shows differing land uses in the area at and surrounding the TOD site.

[140] Dover, Del., City of, *Zoning Map Book*, (Dover: City of Dover, Department of Planning and Inspections, October 23, 2006), www.cityofdover.com/media/documents, 36.



The dark blue shape outlining the Dover bus hub is in the center of this aerial image. The dark blue and green-fill shape to the southwest is where the new Dover DART Bus Hub will be located. To the north are high-density commercial and residential areas interconnected by side streets, and sidewalks. Schools are circled in blue. Various businesses are spread throughout the station area (they are marked with orange Cs). Health facilities in the area are circled in red. Churches are circled in yellow. Below shows a graph of the zoning percentages in acreage of Dover zoning districts located in the station area.



- Vertical/horizontal mixed-use

  The Dover city zoning code does include provisions for vertical mixed-uses within buildings as well as horizontal mixed uses as mentioned above. Such allowances are enumerated in Dover's mixed-use zoning district ordinances.

- Access to:

  - ✓ Food (grocery store, restaurants, farmer's market): Yes
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): Yes
  - ✓ Health Care (hospital, doctor's office, pharmacy): Yes
  - ✓ Education (school, university, libraries): Yes
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): Yes

- *Density (2)*

  Approximate 2010 population in the ½ mile Dover station area is 2,700 people, with the highest density existing in the northern region of the station area.

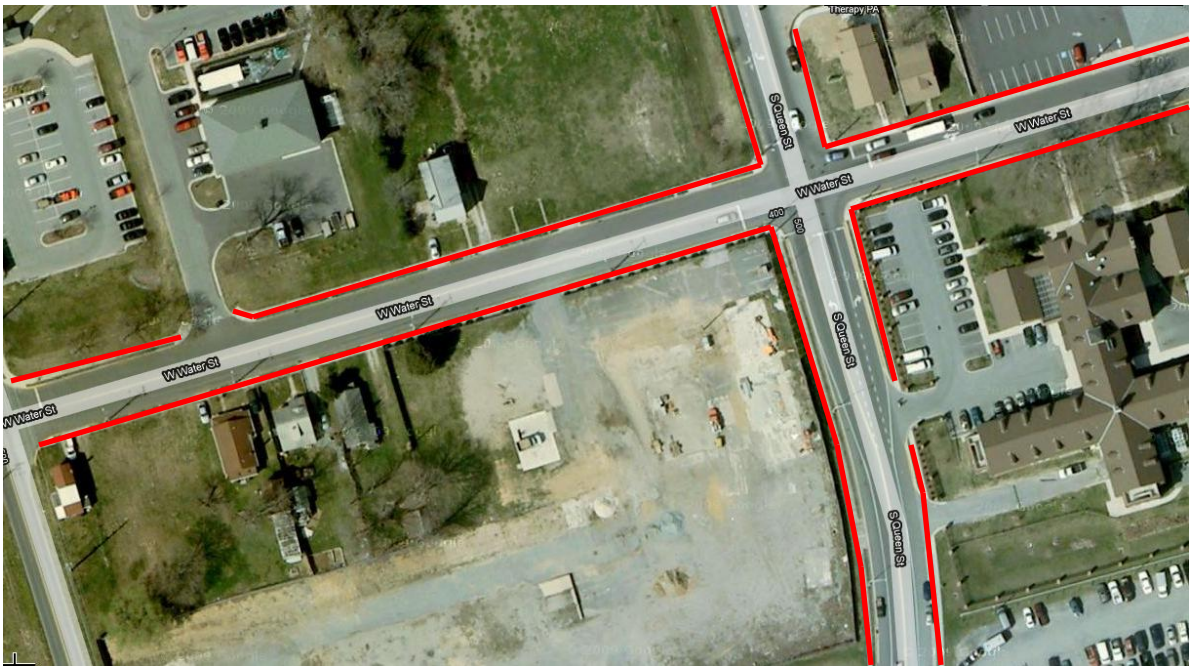
- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (0)*

The city of Dover does not have a TDR ordinance.

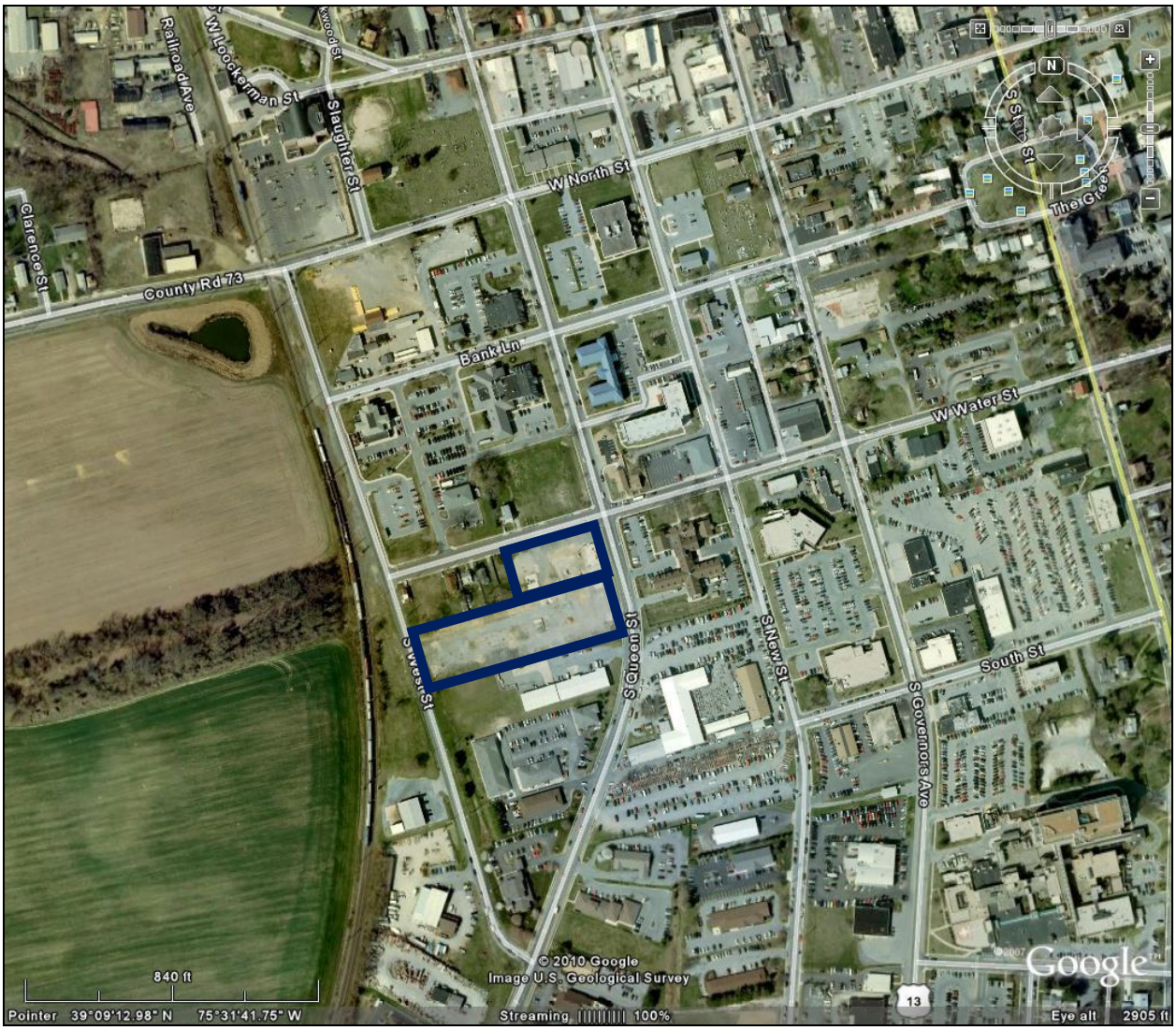
- *Streetscape Design and Pedestrian Accessibility (0)*

  - Street Trees / Tree Medians / Sidewalk Buffers – Adequate

    The picture below shows the street leading to the Dover bus hub. Trees and sidewalk buffers are not fully incorporated into the environment leading to and at the bus station. Sidewalks are highlighted in red.



Minimal amounts of street trees and buffers exist along adjoining roads in the areas located at or near the bus facility.



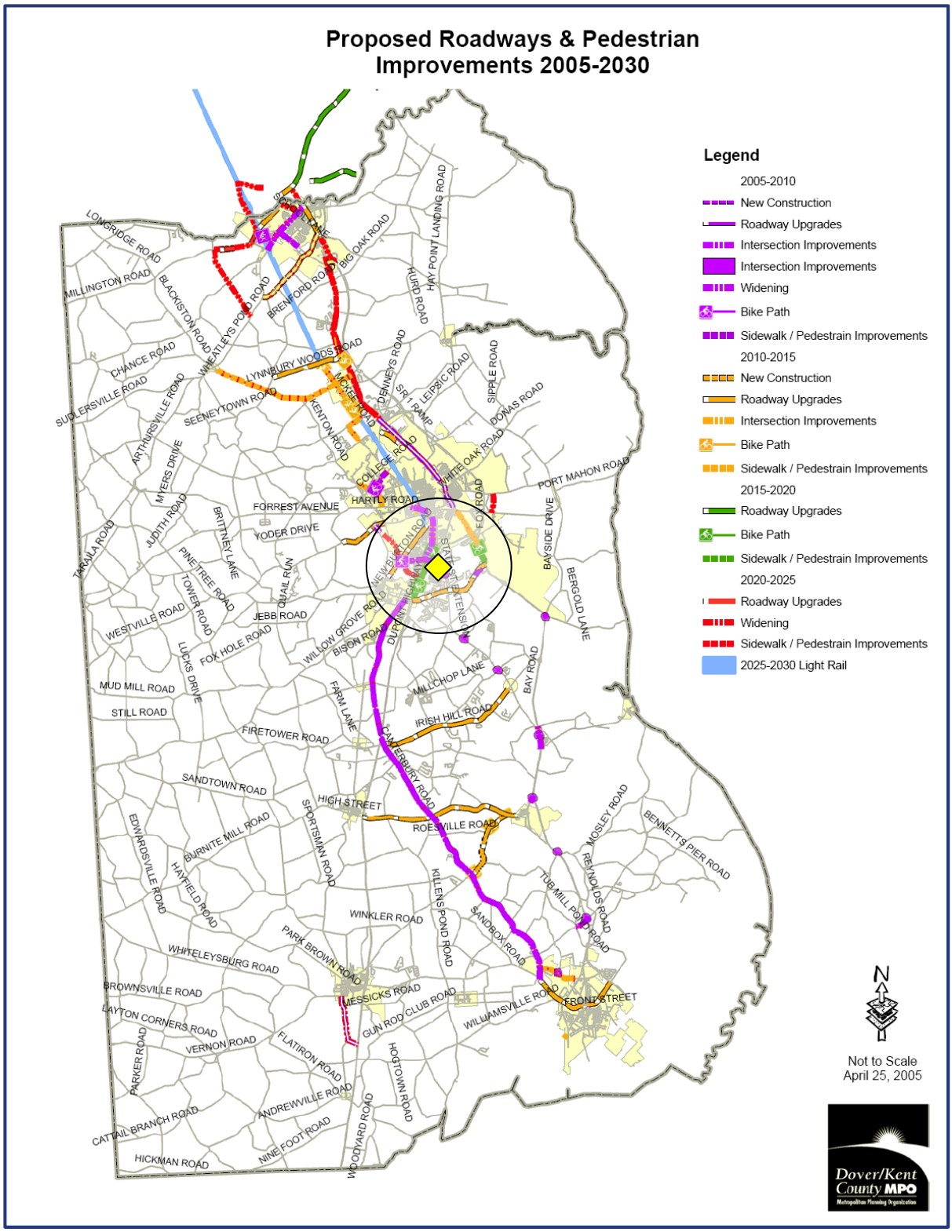
- Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is satisfactory. Dover is a downtown area, so the street grid is of high quality compared to suburban areas. The following map shows the Dover bus hub as a red dot in the center of the image. The yellow circle surrounding the red dot marks a ½-mile radius around the train station. The background lines mark the street grid in the surrounding area adjacent to the station.

- Traffic-Calming:
  - ✓ Speed Bumps - None
  - ✓ Traffic Circles - None

- Sidewalk Quality – Sidewalks are satisfactory.

- Street Lights – The Dover station area is adequately lit with street lights along sidewalks and side streets.

- Bicycle facilities (lanes, racks, lockers) – The map below shows bicycle lanes in the Dover area. The yellow diamond shows the station location.



[141]

[141] Dover-Kent County MPO, *Proposed Roadways and Pedestrian Improvements: 2005-2030*, Dover: Dover Kent County MPO, http://www.doverkentmpo.org/documents/MPOMaps_Improvements.pdf.

- Multi-modal paths (does not include sidewalks) – Sidewalk networks dominate downtown Dover, multi-modal paths are not prevalent.

- *Parking*

  ✓ Minimum vs. maximum parking standards

  The Dover code allows for parking standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative parking solutions.

  ✓ Alternative parking

  The city of Dover encourages alternative parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

Recommendations Moving Forward

1) *Minimum parking requirements in code should be reviewed for possible modification to allow for greater integration of alternative modes of transportation within requirements.*

2) *Reassess zoning to ensure maximum flexibility for higher density, transit-supportive design, and mixed use.*

Congruence with Regional Land Use Plan	**1**

- Comprehensive Plan

The Comprehensive Plan for the city of Dover supports the growth and development of downtown to support TOD.

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

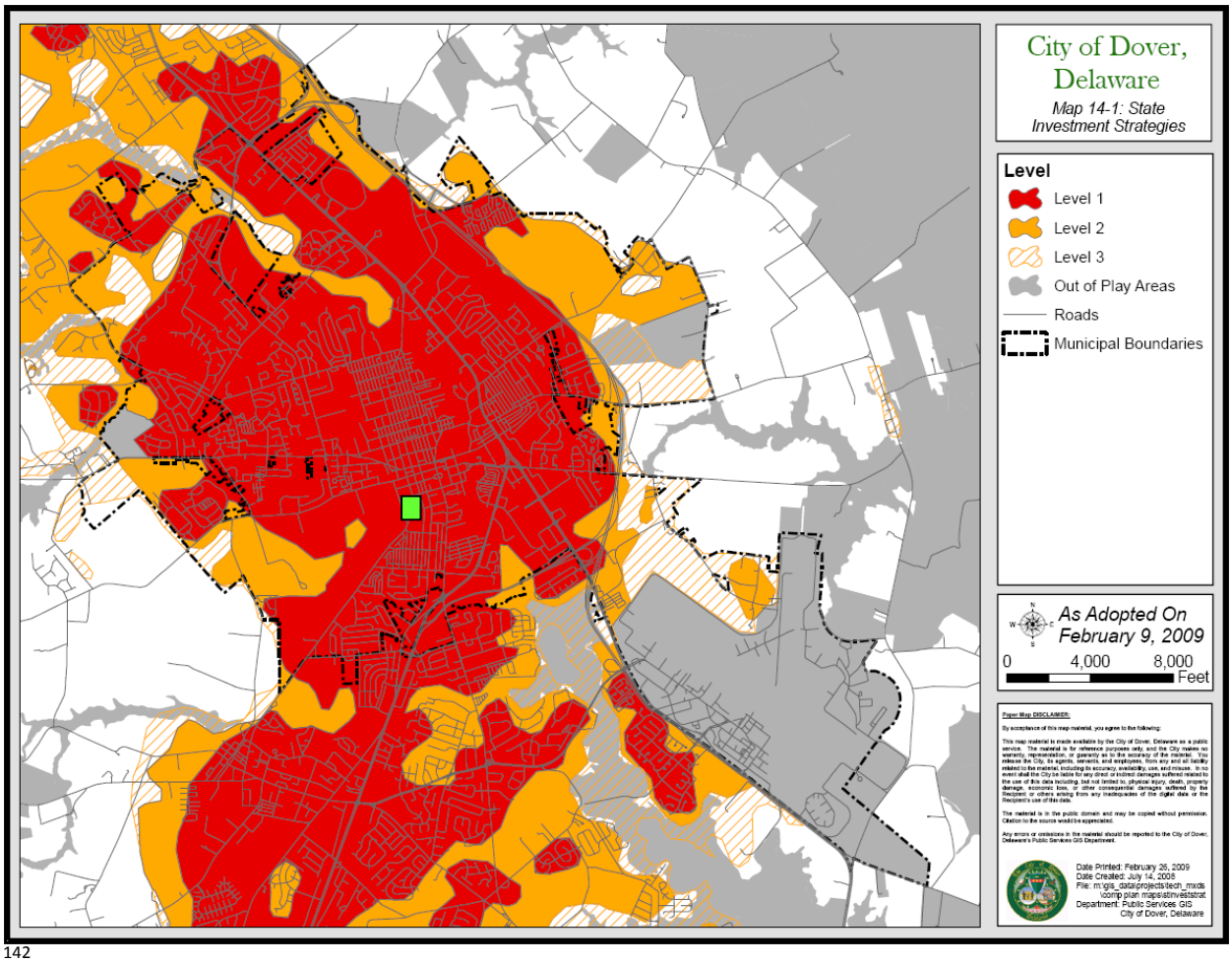
The Dover-Kent County Regional Transportation Plan places the Dover TOD site in a priority area, which along with other sites around the region makes it a prime candidate for fostering innovative transportation solutions.

- Local-Area Plan

The current site is not addressed in a local-area plan.

- Strategies for State Policies and Spending

The Dover station and TOD site are located in a Level 1—priority area as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1—priority area the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.



142

- Intergovernmental Coordination

Intergovernmental coordination is occurring at all levels. The Dover/Kent County MPO, the City of Dover, DelDOT, and the Delaware Transit Corporation are working in concert to facilitate the development of the new Dover DART Bus Hub. The community planning process is underway with regard to enhancing the bus hub and growing a TOD in downtown Dover.

Recommendations Moving Forward

[142] Dover, Del., City of, *The Dover Plan: From the People, For the People [City of Dover, Delaware 2008 Comprehensive Plan]*, (Dover: City of Dover, Department of Planning and Inspections, April 24, 2009), http://www.cityofdover.com/media/documents., Map 14-1.

1) *Intergovernmental coordination must continue to mature and expand*.

Public Support	**1**

Public support for TOD in Dover cannot be determined at this point, given the fact that Dover has never undertaken a concerted effort to implement a TOD project.

Recommendations Moving Forward

1) *Use community-planning tools such as design charettes* to continue to engage the public throughout the Wilmington TOD renovation/restoration process as well as the greater planning process.

2) *Educate the public at the beginning* about the utility of higher density and mixed uses, not during or in the later stages of the project. Be sure that the public sees the same short-term and long-term vision that the planners, architects, and public officials envision.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other programs can be used to connect with people in the community and allow them to be involved with the planning process. Most of these programs are free and accessible online—thereby reducing potential costs associated with traditional methods for educating the public.

Public-Private Partnerships	**1**

The Downtown Dover Partnership represents a conglomeration of private-sector interests whose focus is to "revitalize[e] the Downtown Dover District."[143] This organization is working closely with government organizations to create place in downtown Dover and to enhance downtown Dover to be a destination for many in the region.

Recommendations Moving Forward

1) *Complete a community-planning process for a potential Dover DART Bus Hub TOD that includes private sector stakeholders—especially local developers, builders, local goods/service businesses, architects, and financial professionals.*

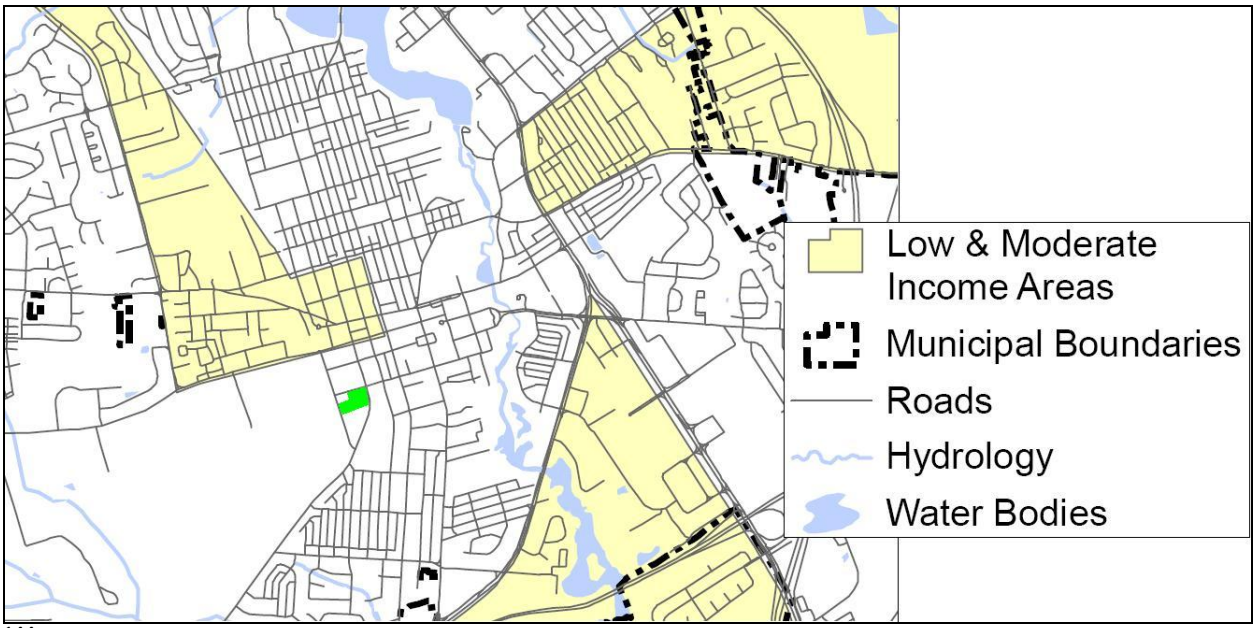
[143] Downtown Dover Partnership, *Downtown Dover Partnership Website*, http://www.downtowndoverpartnership.com/index.html.

Fully-Integrated Transportation System	1

The Dover bus hub is fully integrated into the multi-modal transportation system in the area. Sidewalks, bike lanes, road networks, and bus routes all connect at the location. The Kent County On-Road Bicycle Facilities Map created by DelDOT highlights several state, regional, and recreational bicycle routes that all converge on the TOD site area or the bus hub itself.

Recommendations Moving Forward

1) *The current transportation network in the Dover area could be enhanced by improved on-road bicycle facilities, bicycle lockers, and bicycle racks within the area inside a ½-mile radius of the station.* High traffic volume roads in the area would benefit from enhanced on-street bicycle lanes. The importance of intermodal connectivity cannot be overstated, given the proximity to which the station is located near low-and moderate-income populations who benefit most from better access to public transportation. The map below included in the Dover Comprehensive Plan shows low-and moderate-income areas and their location relative to the green area that marks the bus hub station location.

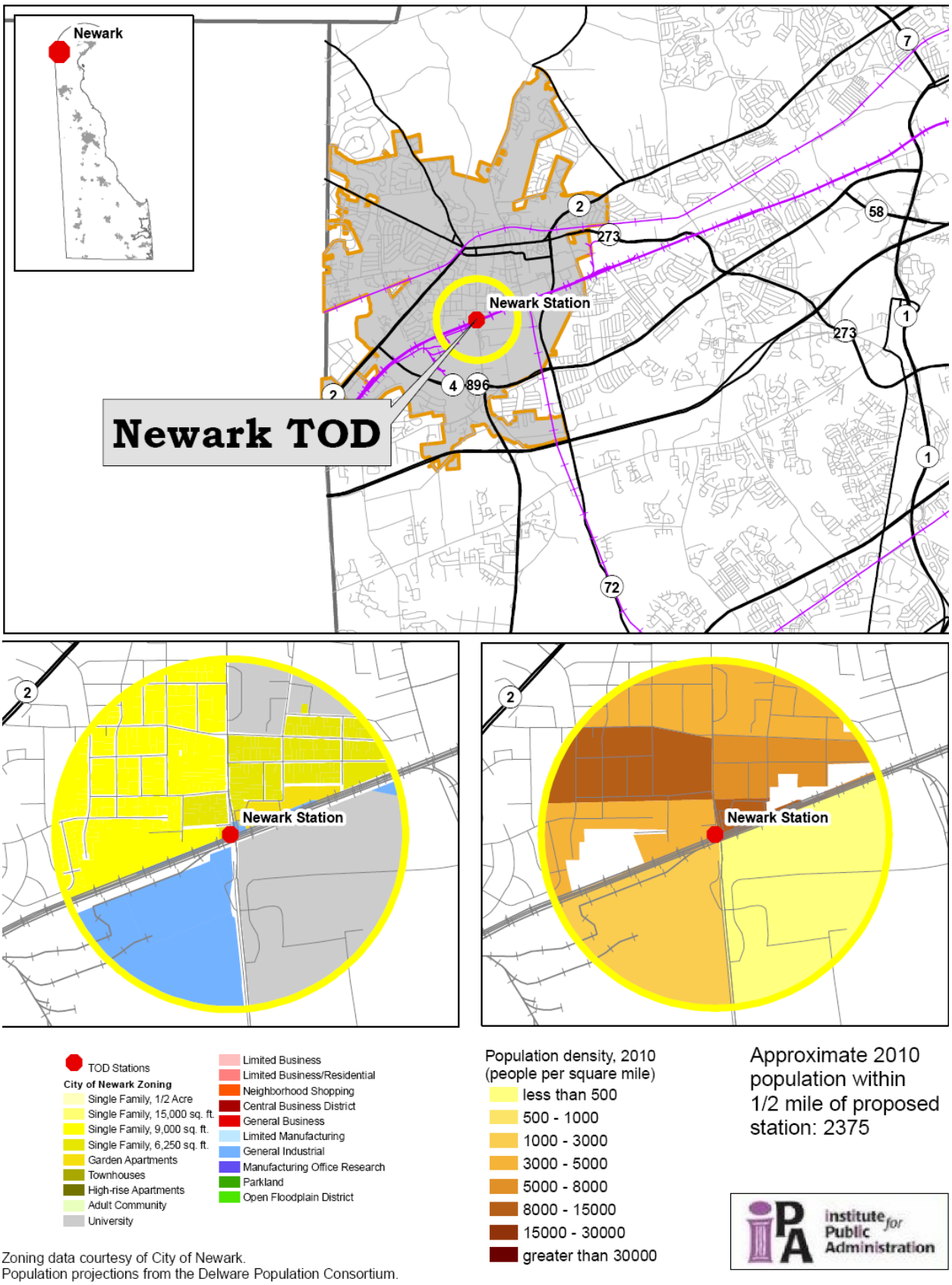


144

Newark Commuter-Rail Station

144 Dover, Del., City of, *The Dover Plan: From the People, For the People [City of Dover, Delaware 2008 Comprehensive Plan]*, (Dover: City of Dover, Department of Planning and Inspections, April 24, 2009), http://www.cityofdover.com/media/documents., Map 11-1.

Total Site Evaluation Score: 9



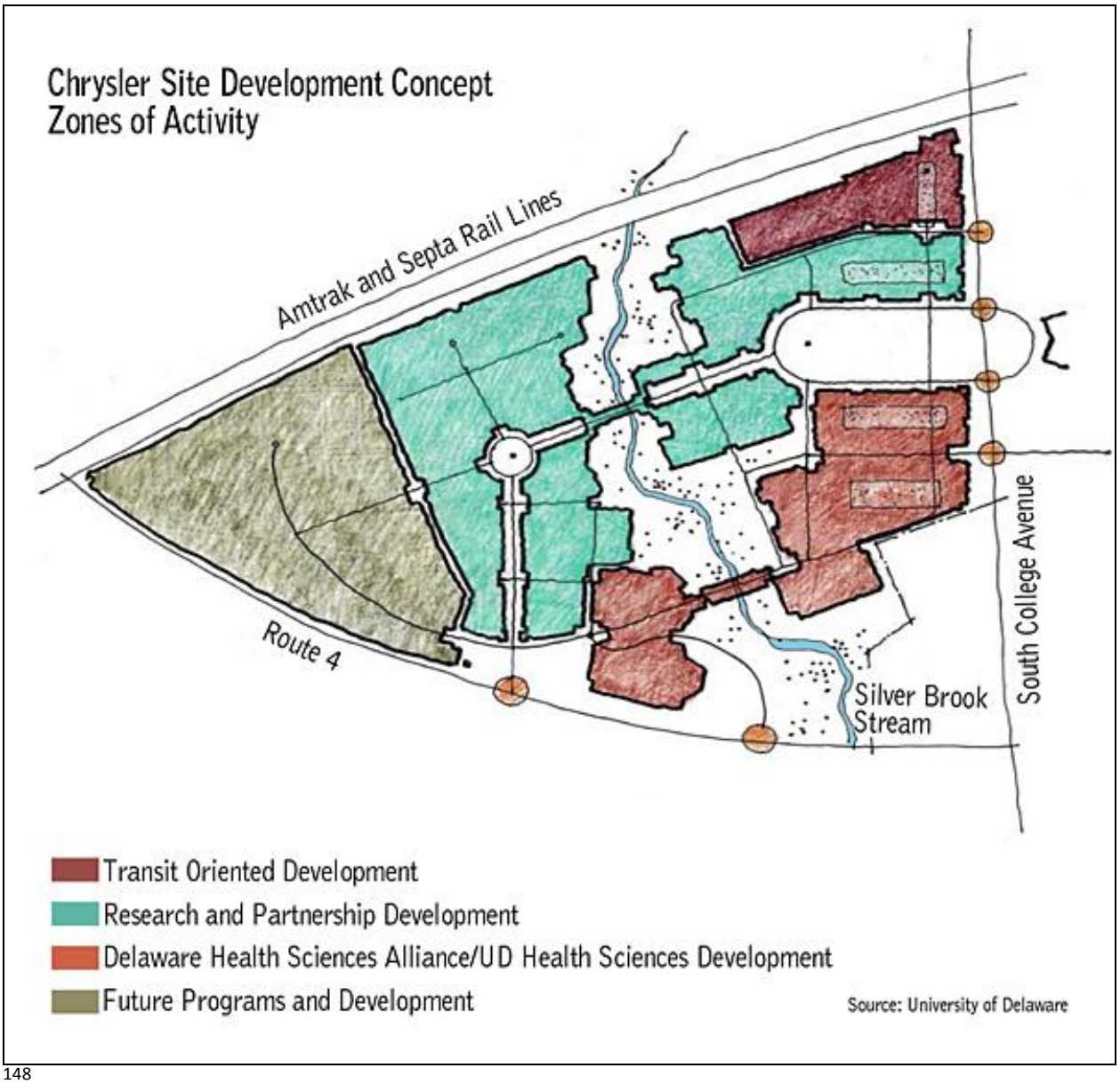
Zoning data courtesy of City of Newark.
Population projections from the Delware Population Consortium.

Existence of a high capacity/high volume transit station (rail, bus, BRT, metro, street car, etc.)	**1**

The Newark commuter-rail station is satisfactory for conversion into a TOD site. The Newark commuter-rail station handles approximately 342 boardings and 357 alightings on any given weekday.[145] More than 270 off-street parking spaces are available at the facility, and on a normal weekday almost every space is used by rail commuters. DART First State bus routes 16, 33, 39, 55, 59, and 65 stop at the Newark location daily.[146] The Newark station's ticket office is open weekdays, and the station is wheelchair-accessible.[147]

With regard to future growth potential, the Newark station benefits from the recent purchase of the Chrysler Plant by the University of Delaware (UD). UD is committed to making TOD a comprehensive part of a greater land use plan they envision for the Chrysler site re-development. Given the Newark station's high current usage, UD's site redevelopment plans could provide much needed transit capacity expansion at the Newark TOD site. The draft land use map for the site released by UD is listed below and includes specific mention and site delineation of TOD at the Newark station.

[145] Southeastern Pennsylvania Transportation Authority. *FY2010 Annual Service Plan*. Philadelphia: Service Planning Department, June 2009. http://www.septa.org/reports/pdf/asp10.pdf, 64-65.
[146] Southeastern Pennsylvania Transportation Authority. *R2 Wilmington and Newark to/from Center City Philadelphia and Norristown*, January 17, 2010
[147] Ibid.



[148]

It is expected that the University of Delaware's College of Health Sciences will move to the newly purchased Chrysler site to partner with, among other organizations, the Delaware Health Sciences Alliance, Thomas Jefferson University, Nemours Child Health System, and the U.S. Army at Aberdeen Proving Ground.[149] Conference facilities similar to those at UD's Clayton Hall are to be constructed at the Chrysler site.[150] Also envisioned for the site is on-site housing that will target graduate and doctoral students as well as young couples.[151]

[148] http://www.udel.edu/ocm/newsreleases/2010/nov/ChryslerSitelg.jpg.
[149] University of Delaware, *Newark Chrysler Site: Business Resource Information*, (Newark: University of Delaware, Office of Communications and Marketing, March 9, 2010), http://www.udel.edu/newarkchryslersite.
[150] McDermott, Marge, Assistant Director of Planning, University of Delaware. Interview conducted 2/23/10.
[151] Ibid.

A barrier to expanded Newark train service is freight-line conflict with the Norfolk Southern company, North America's largest rail carrier of metal and automotive products.[152] Norfolk Southern operates a rail yard at the Chrysler site currently and intends to do so in the future as the yard at that location is of vital importance to downstate freight shipment operations in Delaware. The below aerial map shows the freight yard located on the north side of the former Chrysler plant.

Recommendations Moving Forward

[152] Norfolk Southern, *Website: Corporate Profile*, http://www.nscorp.com/nscportal/nscorp/Media/Corporate%20Profile.

1) *Continue to improve and establish public-private partnerships with key stakeholders.* The efficiency and functionality of the Newark train station in the future depends on UD and Norfolk Southern and how both entities work with public officials to find innovative transportation solutions that work for everyone. Public officials must continue to work with UD to facilitate the development of a TOD at the Newark R2 station and with Norfolk Southern to address commuter-freight-rail line conflicts that occur and will continue to occur if service is to be expanded at the Newark station to accommodate a TOD site.

Adequate Zoning	**4**

The zoning at and around the Newark commuter-rail station is satisfactory for TOD conversion. The UD Chrysler TOD site is currently an industrial site, but in time it is expected to be converted into a mixed-use complex for UD. The Newark municipal code delineates University Districts that are used for application to University of Delaware sites and would seem likely to be applied to the Chrysler site at some point in the future. With the UN district designation, UD will be exempted from current zoning—making conditions ideal for TOD implementation. Therefore, even though the zoning at and around the site may not be optimal at present, it is expected that the needs of TOD (mixed-use, high density, etc.) can still be accomplished in the future. Additionally, although the actual TOD site does not encompass a vast array of mixed uses, the greater surrounding area includes job centers, restaurants, residential neighborhoods, parkland, and small business.

Sub-Factors

- *Station-Area Plans/Circulation Plans (0)*

  Currently no station-area plans or circulation plans for the TOD site have been completed.

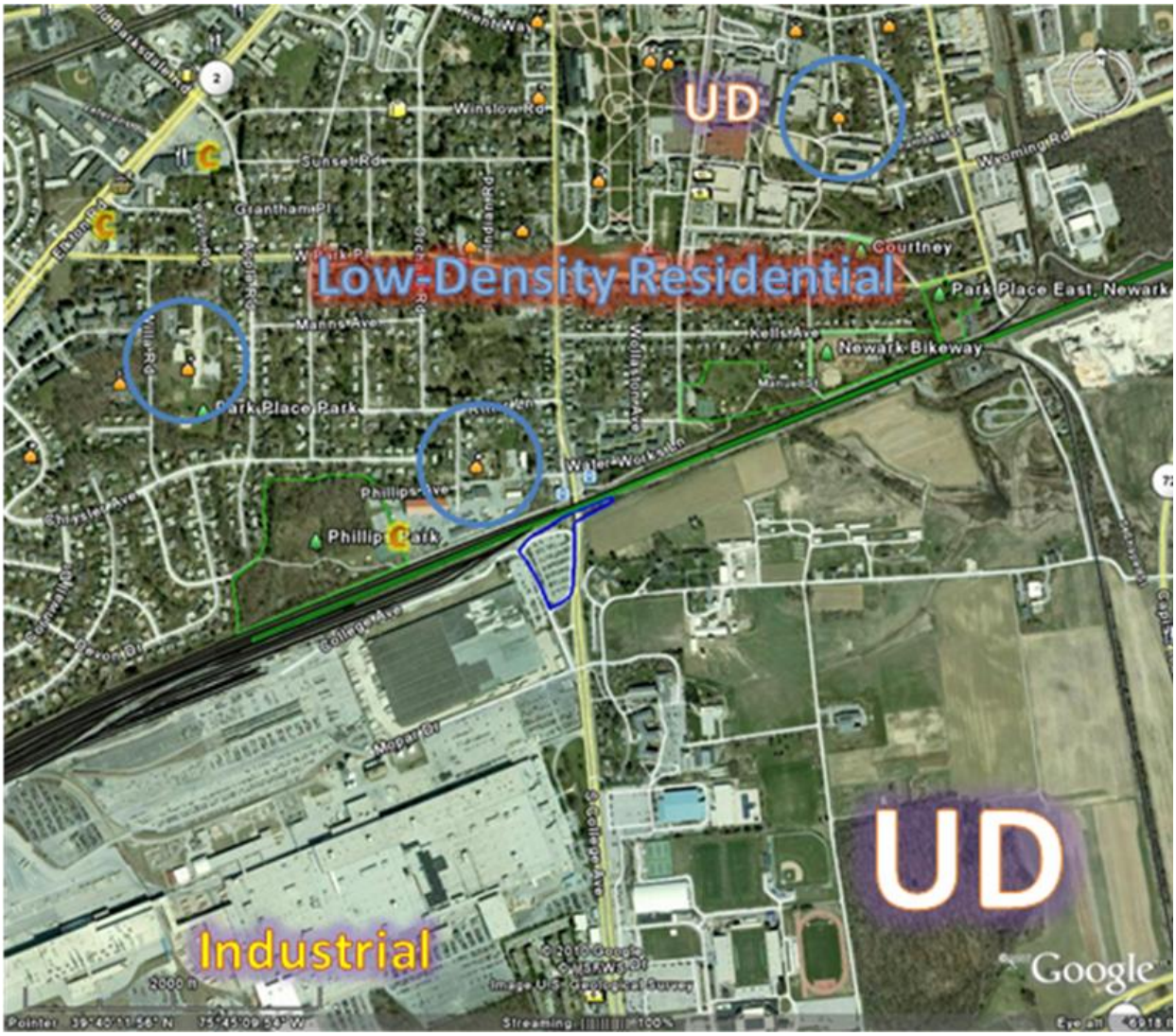
- *Transit-Supportive Zoning (0)*

  The City of Newark does not have any transit-supportive zoning districts included in code.

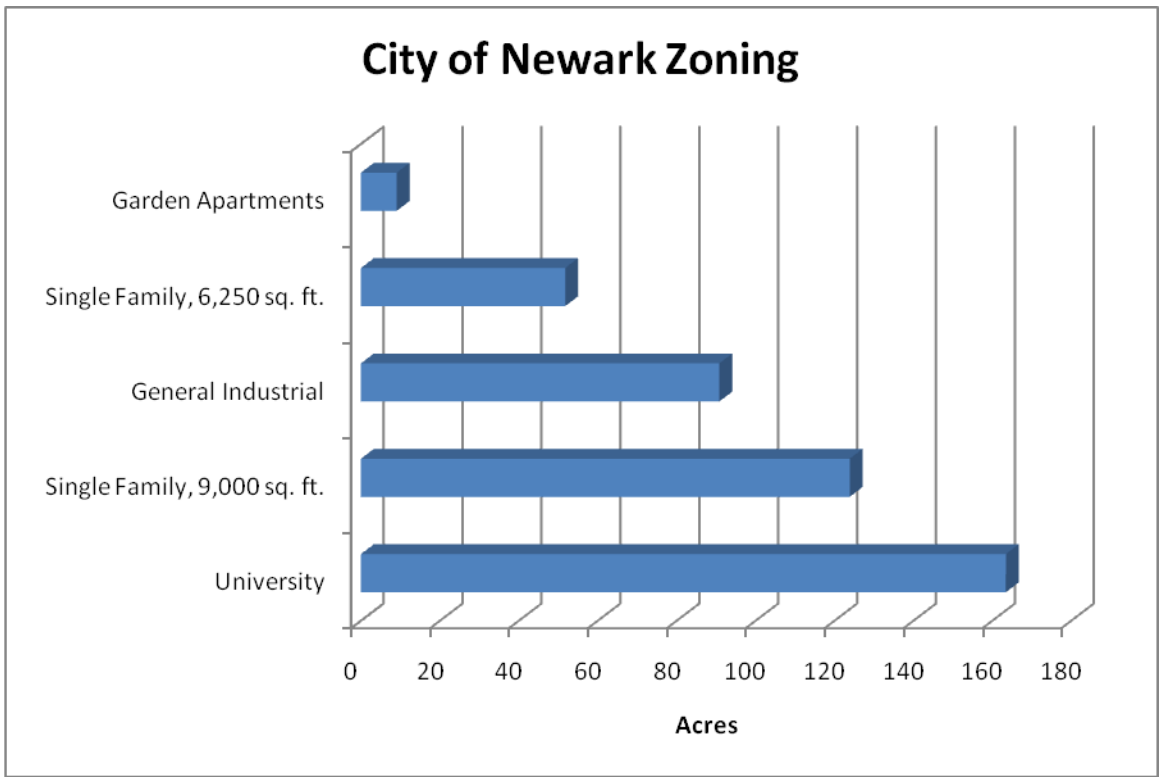
- *Mixed Use (1)*

  The City of Newark does not have any mixed-use zoning districts included in code.

  - Quantity/Quality of mixed-use structures: The below aerial map shows differing land uses in the area at and surrounding the TOD site.



The dark blue shape outlining the Newark train station is in the center of this aerial image. To the north are low-density residential areas interconnected by side streets, sidewalks, and some bike lanes, as well as multi-modal paths. The multi-modal paths are included in parkland areas that extend along the north side of the railroad tracks. Schools are embedded in the residential district to the north and are circled in blue. A few small businesses are also embedded within the residential district (they are marked with orange Cs). To the southwest is the old Chrysler industrial site. Immediately across from Chrysler are UD facilities that include the UD farm, the UD College of Agriculture and Natural Resources, and the vast majority of athletic facilities for UD sports teams. The graph below shows the zoning breakdown percentages in acreage of various zoning districts located in the Newark station area.



- Vertical/horizontal mixed-use

The Newark city zoning code does include some provisions for vertical mixed uses within buildings. For example, Article VI, Section 32-16.1 of the code explains the Limited Business Residential District, a district with allowances included for vertical mixed uses in certain circumstances. Additionally, as mentioned above, University Districts afford greater design flexibility to UD to use creative TOD success strategies like incorporating vertical mixed uses into the surrounding land use design at the Newark TOD site.

- Access to:
  - ✓ Food (grocery store, restaurants, farmer's market): No
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): No
  - ✓ Health Care (hospital, doctor's office, pharmacy): No
  - ✓ Education (school, university, libraries): Yes
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): Yes

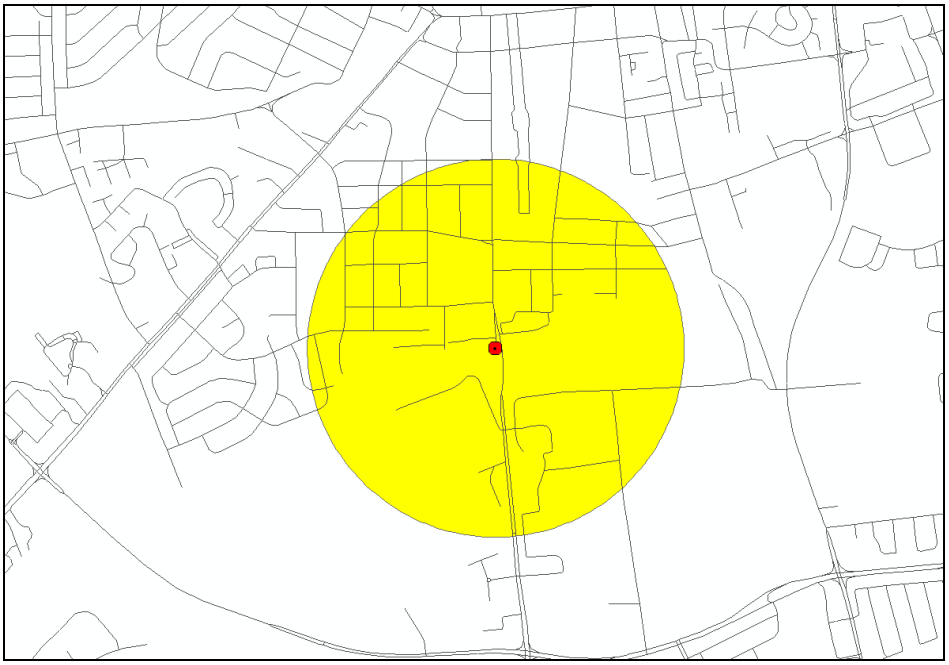
- *Density (2)*

  Approximate 2010 population in the ½-mile radius of the Newark station area is 2,375, with the highest density existing in the region north of the station area.

- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (0)*

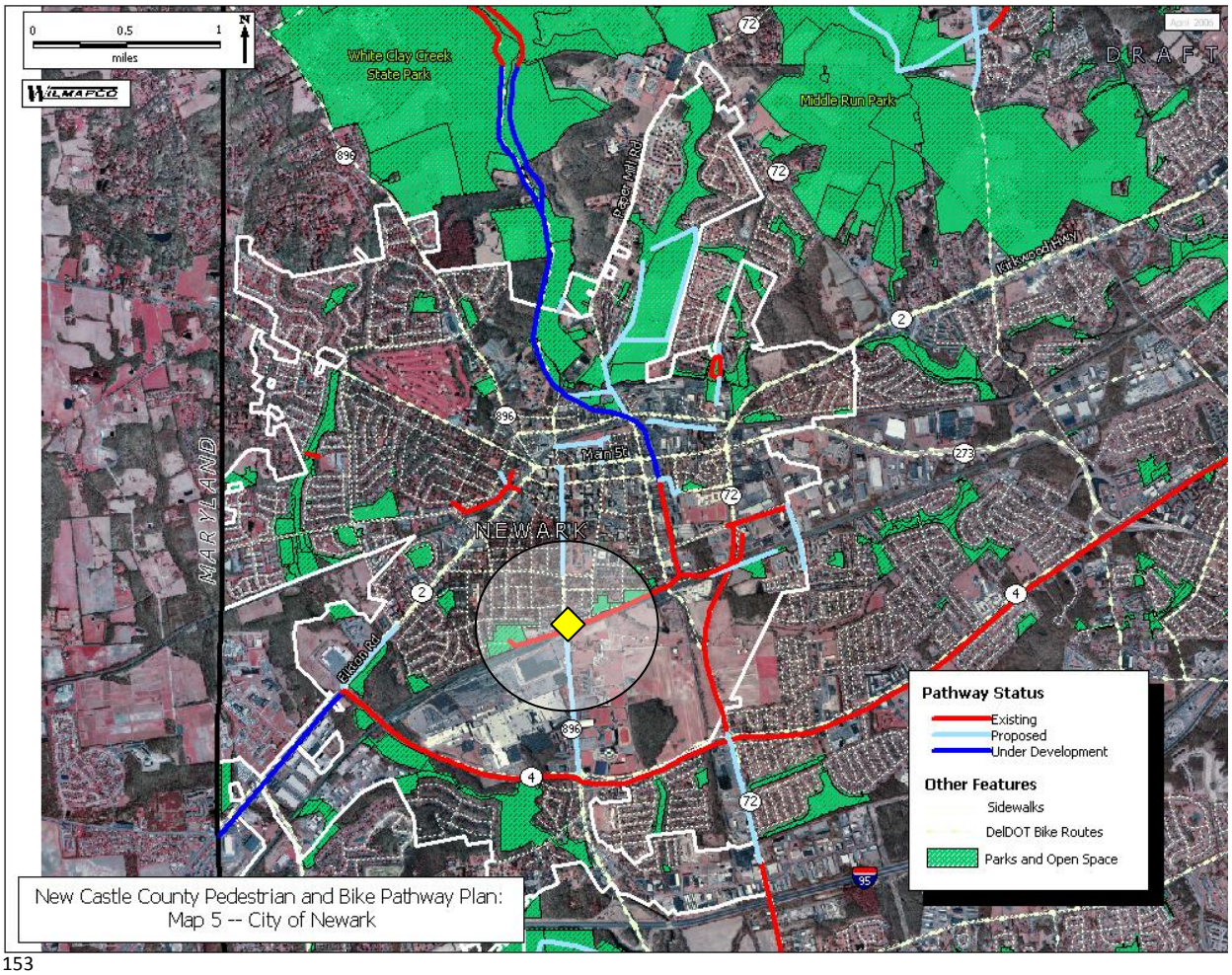
The City of Newark does not have a TDR ordinance.

- *Streetscape Design and Pedestrian Accessibility (1)*
  - Street Trees / Tree Medians / Sidewalk Buffers - Minimal
  - Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is satisfactory. The northern residential areas are well connected. Of greater importance will be the emerging street grid that is created as a result of the Chrysler site redevelopment. The following map shows the Newark train station as a red dot in the center of the image. The yellow circle surrounding the red dot marks a ½ mile radius around the train station. The background lines mark the street grid in the surrounding area adjacent to the station.



  - Traffic-Calming
    - Speed Bumps - None
    - Traffic Circles - None
  - Sidewalk Quality – Sidewalks are provided across the South College Avenue bridge overpass, to and from the train station, and along roadways leading to or adjacent to the train station. Sidewalks are highlighted in red. Multi-modal paths are highlighted in yellow. The sidewalks are generally of satisfactory quality for walking.

- Street Lights – Parking-lot lights are installed on-site at the Newark station. The Chrysler-site redevelopment should take into account the need for well-lit transit facilities.
- Bicycle facilities (lanes, racks, lockers) – The below map shows bicycle lanes in the Newark area. The yellow diamond shows the station location.



153

The Newark site has bicycle lockers and racks currently as shown in the below picture.

[153] Wilmington Area Planning Council, *New Castle County Pedestrian and Bike Pathway Plan: Map 5 – City of Newark* (Newark: Wilmington Area Planning Council, 2006), http://www.wilmapco.org/nccpathways/images/maps/April06/Map2_Apr06.jpg.

- Multi-modal paths (does not include sidewalks) – The James F. Hall Trail extends along the north side of the R2 rail line in the Newark area from Bradford Drive to Wyoming Rd. at the Delaware Technology Park near College Square. This multi-modal pathway provides a breadth of connectivity between Newark pedestrians and the Newark train station. The James F. Hall Trail is shown below highlighted in yellow.

Below shows the multi-modal path and sidewalk network extending west of the Newark train station.

- *Parking*
  - Minimum vs. maximum parking standards

The Newark code allows for parking-standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative parking solutions.

  - Alternative parking

The City of Newark encourages alternative-parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

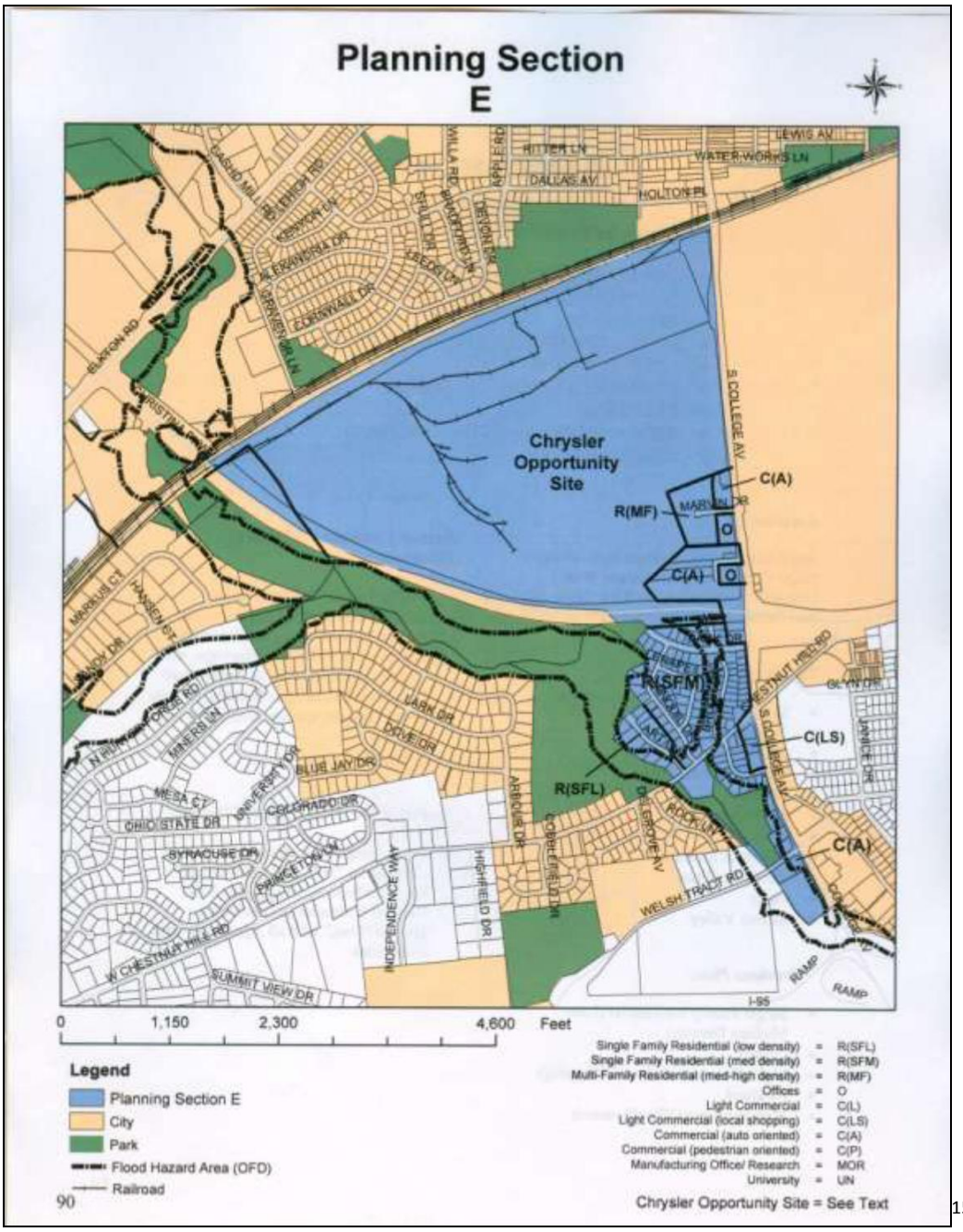
Recommendations Moving Forward

1) *A Station Area Plan for the site should be completed* to put in motion certain site upgrades needed to make it more transit supportive and in line with the long-term vision for the area.

Congruence with Regional Land Use Plan	**1**

- Comprehensive Plan

The Comprehensive Plan for the city of Newark outlines the city's vision for the Chrysler site (Planning Section E) moving forward. This vision is in support of mixed-use, increased employment density that is necessary for successful TOD. Below is an excerpt from the Newark Comprehensive Plan:



[154]

The Newark Comprehensive Plan explains what land uses are recommended in Planning Section E, the rationale for recommended uses, and previous planned and existent uses:

[154] Newark, Delaware, City of, *Newark Comprehensive Development Plan IV*, (Newark: Department of Planning, October 27, 2008), 99.

PLANNING SECTION E

Recommended Use(s):

- MANUFACTURING OFFICE/RESEARCH; CHRYSLER OPPORTUNITY SITE
- SINGLE FAMILY RESIDENTIAL (LOW TO MEDIUM DENSITY)
- MULTI-FAMILY RESIDENTIAL
- OFFICES
- LIGHT COMMERCIAL (LOCAL SHOPPING)
- COMMERCIAL (AUTO-ORIENTED)
- STREAM VALLEY
- PARKLAND

Location:

Conrail/Amtrak Railroad Right-of-Way to Christina Creek, West Side of Route 896

Existing Use(s):

- Chrysler Corporation
- Single Family
- Apartments
- Hotels
- Offices
- Businesses
- Stream Valley
- Railroad Station

Previous Plan:

- Single-Family Residential (Low To Medium Density)
- Multi-Family Residential
- Offices
- Light Commercial (Local Shopping)
- Commercial (Auto-Oriented)
- Stream Valley
- Parkland

Special Conditions Affecting Development:

- Auto and Truck Traffic Volume on Christina Parkway
- Stream Valley
- Pending Chrysler Closing
- Cost to Provide City Electric could be High

Rationale for Recommended Use(s):

- Developed as Indicated
- Manufacturing; Office/Research at Chrysler Site Corresponds to Existing use; Chrysler Opportunity Site uses reflect Property's Size, Central Location, Proximity to Uses ranging from University, to Commercial, to Residential of all types

[155]

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

The WILMAPCO Regional Transportation Plan places the Newark TOD site in a Congestion Management System (CMS) Corridor,[156] which makes the Newark TOD site, along with other sites around the region, a priority area for fostering innovative transportation solutions.

- Local Area Plan

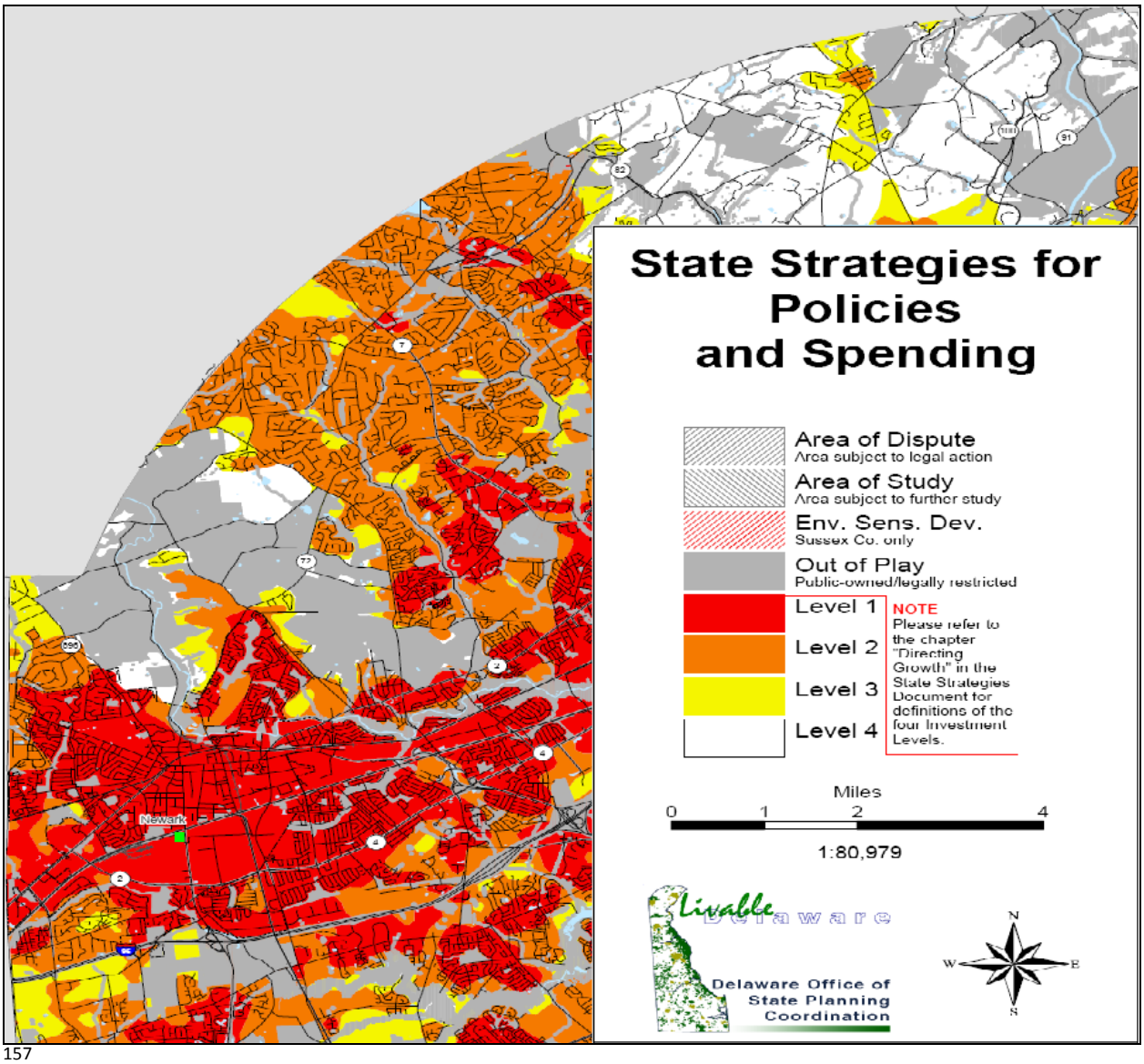
[155] Newark, Delaware, City of, *Newark Comprehensive Development Plan IV*, (Newark: Department of Planning, October 27, 2008), 100.

[156] WILMAPCO, *Regional Transportation Plan: 2030 Update* (March 22, 2007), http://www.WILMAPCO.org/RTP/Final%202030%20RTP/2030_RTP_APPROVED_MARCH_2007_web.pdf, 26.

The Newark station and TOD site currently are not located in any local-area planning area as defined by the New Castle County Major Sub Regional Studies map.

- Strategies for State Policies and Spending

The Newark station and TOD site are located in a Level 1 priority area as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1 priority area, the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.



157

- Intergovernmental Coordination

Intergovernmental coordination is occurring at all levels. The City of Newark, New Castle County government, and the state of Delaware are in constant contact with each other as well as with other actors such as the University of Delaware, Maryland governments, and the Norfolk Southern Company.

In October 2009 a BRAC Rail Summit was held where various actors from around the region attended to compare ideas on, among other issues, the Newark train station and its TOD potential. Notable governmental agencies in attendance included representatives from DelDOT, Delaware Transit Corporation, New Castle County Government, MDOT, City of Newark, MTA, SEPTA, AMTRAK, MARC, and

[157] Office of State Planning Coordination. *Delaware Strategies for State Policies and Spending: 5 Year* Update, (Dover: Office of State Planning Coordination, July 2004), http://stateplanning.delaware.gov/strategies/maps_04/ncco_ansi_d.pdf.

WILMAPCO. This discussion is the type of public dialogue that must continue to occur if Delaware officials are to succeed in developing a Newark TOD as well as a regionally interconnected TOD system.

The University of Delaware newspaper, *The Review*, reported on March 9, 2010, further cooperation as the University offered to store trains and related equipment at the recently acquired Chrysler site that the University intends to redevelop into future educational facilities.[158]

Recommendations Moving Forward

1) *Intergovernmental coordination must continue to mature and expand* as planning at the Newark site moves forward.

2) *Future Comprehensive Plans, Transportation Plans, Local Area Plans, and other documents should incorporate more TOD language specific to the Newark site* to delineate it as a priority area in the state of Delaware. Station area plans, transit-supportive zoning, fast track approval processes, and model mixed use zoning ordinances should be incorporated into plans at all levels to truly make TOD a primary piece of land use and transportation policy in Delaware.

Public Support	**1**

To date, the public seems to be fully behind a possible Newark TOD. This has been bolstered by the excitement generated from UD's purchase of the Chrysler facility. During a time of economic downturn, the public is very receptive to new redevelopment plans and the prospect for new development and jobs coming to an area that just lost a major employment center.

Recommendations Moving Forward

1) *Use community-planning tools such as design charettes* to engage the public throughout the Newark TOD-planning process.

2) *Educate the public on the front end* about the utility of higher density and mixed uses, not during or in the later stages of the project.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other programs can be used to connect with people in the community to be involved with the planning process.

[158] Rader, Sean. "Newark proposes plans to expand train station: Funk hopes for partnership with SEPTA, MARC," *The Review*, March 9, 2010, 8.

Public-Private Partnerships	1

The Newark train station and TOD site are strategically located in an economic corridor expecting incredible growth over the next few years. Northeastern Maryland's Aberdeen Proving Ground will be expanded through the Base Realignment and Closure (BRAC) process facilitated by the U.S. Department of Defense. This will transfer thousands of jobs to the region and through purchase of the Chrysler site, the University of Delaware intends to be a part of that jobs transfer. This is why they have formed partnerships with not only the Army, but with various private sector interests in the area in preparation for the potential economic boom that will materialize for the region with the expansion of Aberdeen Proving Ground.

UD and Delaware public officials are also working with Norfolk Southern, as mentioned before, on rail cooperation issues with regard to freight—commuter rail conflicts.

Recommendations Moving Forward

1) *Address commuter rail vs. freight rail conflicts in the Newark area with Norfolk Southern* so that Norfolk Southern operations are not negatively impacted and so that Newark commuter rail can accommodate Chrysler-site redevelopment and TOD at the Newark train station.

Fully Integrated Transportation System	1

The Newark train station is fully integrated into the multi-modal transportation system in the area. Sidewalks, bike lanes, road networks, bus routes, and commuter rail all connect at the location. Route 896 is a recreational bicycle connector route as defined by the New Castle County On-Road Bicycle Facilities Map created by DelDOT.[159] Multi-modal park paths extend along the train tracks east and west, connecting with a pedestrian bridge spanning over the train tracks that connects to steps leading to the station platform.

Recommendations Moving Forward

1) *Parking at the Newark station must be addressed to adequately serve car owners*. Currently, parking at the Newark site is approximately at capacity and with redevelopment of the Chrysler site will surely exceed capacity. Use of an embedded parking garage within a building might be an innovative solution to addressing parking issues on site.

[159] Delaware Department of Transportation, *New Castle County On-Road Bicycle Facilities* Map, (Dover: Delaware Department of Transportation, October 2005), http://www.wilmapco.org/data/demographics/PDF_Maps/DelDOT_NewCastle_RegionalBikeMaps_October2005.pdf.

This mixed-use project consists of 90 student housing units, a 140-car parking garage and a 5,000-sq.-ft. retail facility in Morgantown, W.Va. (Designed by James Childs Architects)

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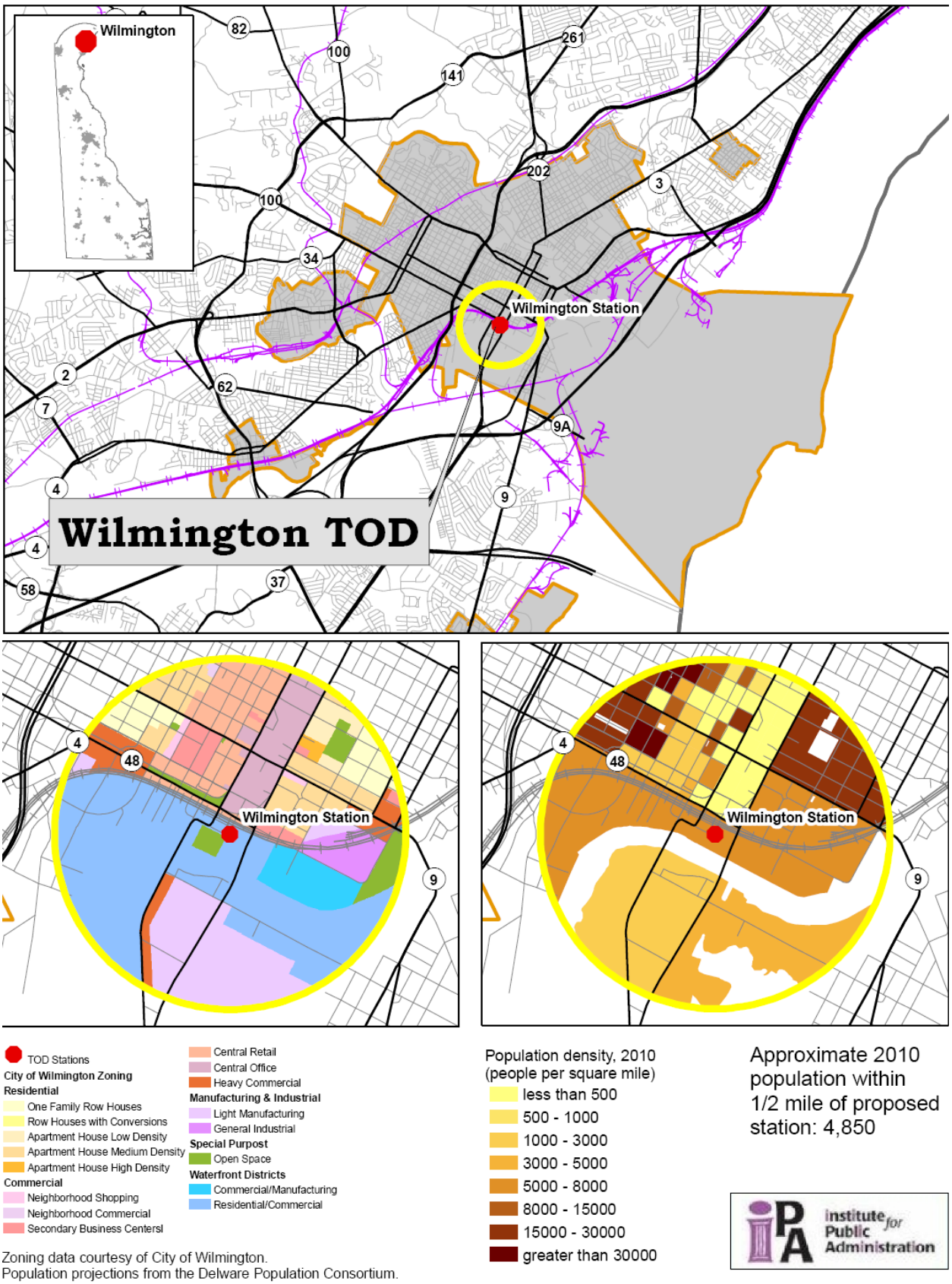
Wilmington Commuter Rail Station

Total Site Evaluation Score: 11

[160] James Childs Architects, *Mountaineer Place Mixed-Use Development*, (South Bend: James Childs Architects, 2008), http://www.jameschildsarchitects.com/Mountaineer_Place.html.


Wilmington
Wilmington TOD
Wilmington Station
Wilmington Station
Wilmington Station
82
100
141
261
202
3
100
34
2
62
7
9A
4
9
4
58
37
48
TOD Stations
City of Wilmington Zoning
Residential
One Family Row Houses
Row Houses with Conversions
Apartment House Low Density
Apartment House Medium Density
Apartment House High Density
Commercial
Neighborhood Shopping
Neighborhood Commercial
Secondary Business Centersl
Central Retail
Central Office
Heavy Commercial
Manufacturing & Industrial
Light Manufacturing
General Industrial
Special Purpost
Open Space
Waterfront Districts
Commercial/Manufacturing
Residential/Commercial
Population density, 2010
(people per square mile)
less than 500
500 - 1000
1000 - 3000
3000 - 5000
5000 - 8000
8000 - 15000
15000 - 30000
greater than 30000
Approximate 2010 population within 1/2 mile of proposed station: 4,850
Zoning data courtesy of City of Wilmington.
Population projections from the Delware Population Consortium.
institute for Public Administration

Existence of a high capacity/high volume transit station (rail, bus, BRT, metro, street car, etc.)	**1**

The Wilmington commuter-rail station handles approximately 847 boardings and 818 alightings on any given weekday.[161] Off-street parking is provided adjacent to and in the area surrounding the station. DART First State bus routes 2, 6, 7, 10, 11, 12, 16, 17, 20, 21, 22, 23, 25, 28, 35, 38, 59, 301, and NJT Rte. 423 stop at the Wilmington location daily.[162] The Wilmington station's ticket office is open weekdays, and the station is wheelchair-accessible.[163]

Amtrak rated the Wilmington station as the 11th busiest station in the nation, supporting 731,539 passengers in 2008.[164] The Wilmington station currently serves 90 trains each day.[165] The table below provides additional statistics from SEPTA on Wilmington passenger revenue, weekday passengers, and annual passengers for 2008:

[161] Southeastern Pennsylvania Transportation Authority. *FY2010 Annual Service Plan*. Philadelphia: Service Planning Department, June 2009. http://www.septa.org/reports/pdf/asp10.pdf, 64.
[162] Southeastern Pennsylvania Transportation Authority. *R2 Wilmington and Newark to/from Center City Philadelphia and Norristown*, January 17, 2010
[163] Ibid.
[164] Amtrak, Government Affairs, *Amtrak Fact Sheet, Fiscal Year 2008: State of Delaware*, (Washington DC: Amtrak, Government Affairs, November 2008), 1.
[165] Wilmington Area Planning Council, *2008 Inter-Regional Report: Making Connections Across Our Region's Borders*, (Newark: Wilmington Area Planning Council, July 10, 2008), 42.

REGIONAL RAIL DIVISION
Annual Route Performance Review
SEPTA FY 2010 Annual Service Plan

Branch	Vehicle Hours	Vehicle Miles	Peak Cars	Weekday Passengers	Annual Passengers	Passenger Revenue	Fully Alloc. Expenses	Operating Ratio
R-3 Elwyn	42,403	923,427	25	10,555	2,922,700	$10,381,430	$15,431,690	67%
R-6 Norristown	40,521	1,119,290	19	10,370	2,944,000	$9,205,888	$16,114,195	57%
R-5 Paoli	98,942	2,685,833	59	22,270	6,375,900	$24,273,051	$43,163,225	56%
R-2 Warminster	44,642	1,130,660	19	8,139	2,418,100	$8,867,173	$16,382,226	54%
R-5 Doylestown	95,616	2,564,674	35	16,285	4,611,900	$17,326,908	$32,782,493	53%
R-2 Wilmington	51,026	1,607,137	27	9,856	2,700,500	$9,875,729	$20,445,738	48%
R-3 West Trenton	70,542	2,084,259	39	11,851	3,308,800	$12,728,954	$28,498,502	45%
R-8 Fox Chase	26,027	554,026	13	5,435	1,459,300	$4,067,069	$9,229,171	44%
R-7 C H East	35,688	773,660	12	5,770	1,658,300	$4,522,184	$11,326,811	40%
R-8 C H West	29,967	640,493	12	5,596	1,588,700	$4,221,176	$10,724,199	39%
R-7 Trenton	71,517	2,488,213	32	11,048	3,303,400	$12,543,010	$32,983,069	38%
R-1 Airport	33,644	729,979	9	6,073	2,003,900	$3,419,655	$9,255,253	37%
R-6 Cynwyd	1,614	36,383	2	606	154,500	$416,687	$1,195,770	35%

Minimum Acceptable Subsidy 29% (60% of Division operating ratio of 49%)

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With regard to future growth potential, the Wilmington station benefits from the redevelopment of the downtown riverfront and a strong business base of activity within the station area. Downtown riverfront redevelopment includes new restaurants, shops, lodging, housing, and entertainment. As the riverfront grows in the future, the importance of the Wilmington train station to the regional transportation system will increase. Various businesses and institutions are located within walking distance of the train station, including Chase Bank, Delaware Technical Community College, ING Direct, Widener University-Continuing Legal Education, and local law offices.

[166] Southeastern Pennsylvania Transportation Authority. *FY2010 Annual Service Plan*. Philadelphia: Service Planning Department, June 2009. http://www.septa.org/reports/pdf/asp10.pdf, 63.

Recommendations Moving Forward

1) *Complete the implementation of the ongoing restoration and renovation of the Wilmington station expected to be completed February 2011.* For more information about the renovation, timeline, and background about Wilmington station, please reference Appendix 8.

Adequate Zoning	**5**

The zoning at and around the Wilmington commuter rail station is satisfactory for TOD conversion. The unique mix of business, residential, recreational, and institutional land uses in the nearby vicinity make zoning changes or recommendations irrelevant to an extent. Even if current TOD-friendly land uses were not in place, Wilmington has mixed-use zoning ordinances, circulation plans, and density allowances to help facilitate the process.

Sub-Factors

- *Station-Area Plans/Circulation Plans (1/2)*

  Currently no station-area plan for the TOD site has been completed. A circulation study was completed for downtown Wilmington in July 2009. In 1996 Project for Public Places also completed a design concept for station revitalization for WILMAPCO.

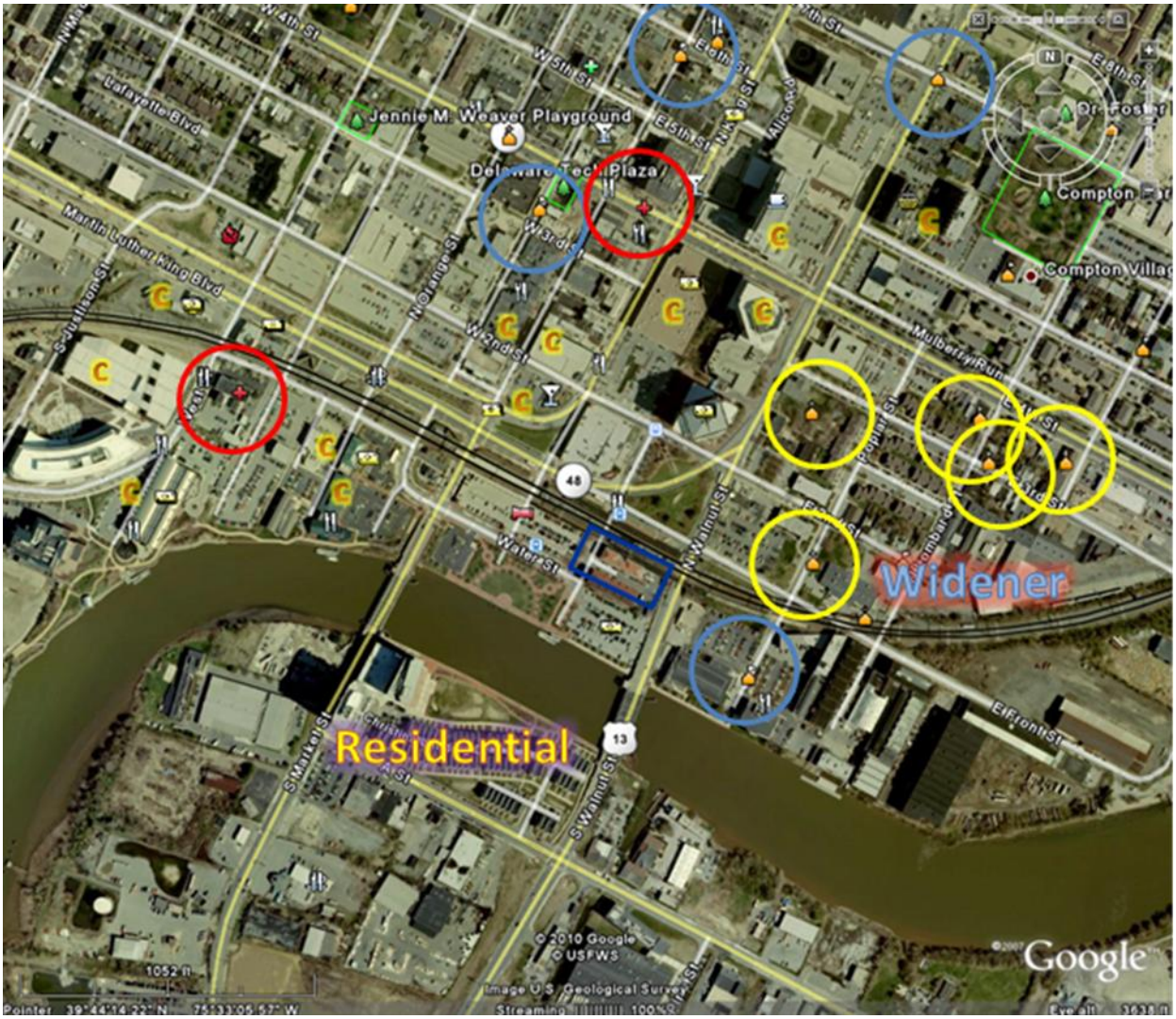
- *Transit-supportive Zoning (0)*

  The City of Wilmington does not have any transit-supportive zoning districts included in code.

- *Mixed-Use (1)*

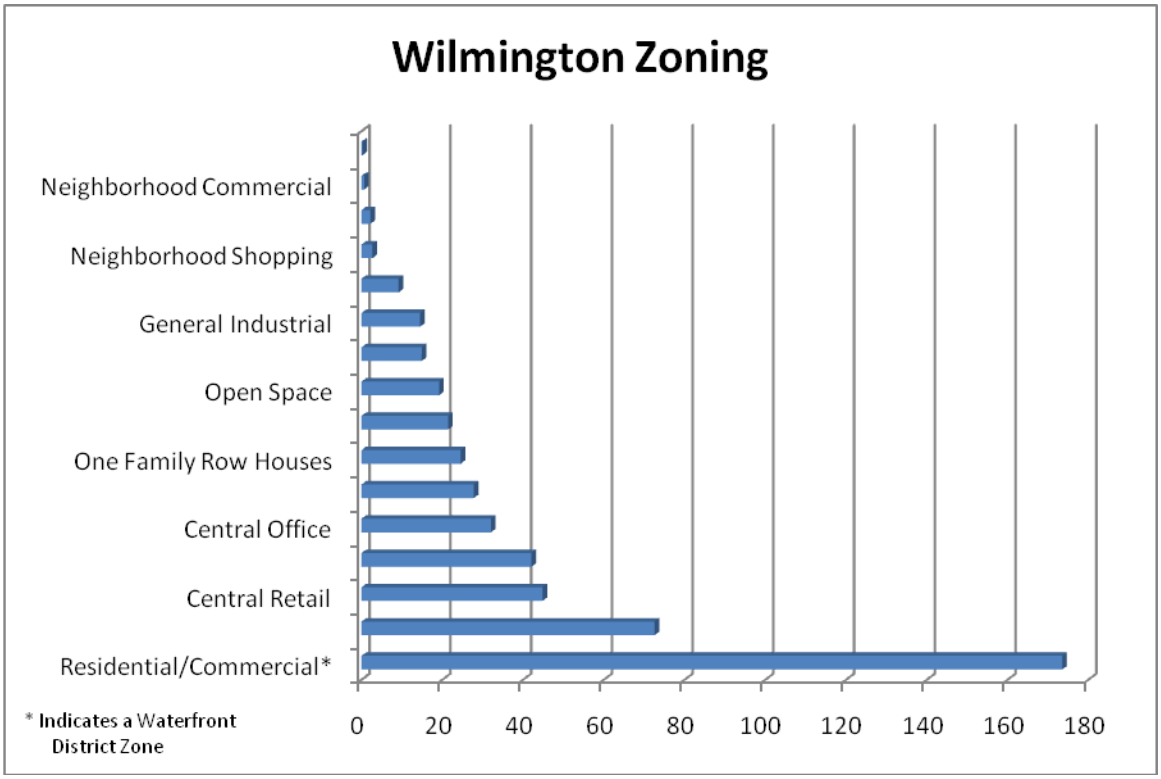
  The City of Wilmington does have mixed-use zoning districts included in code. They include the Riverfront Mixed Use Zoning District, Main Street Mixed Use District, Historic Mixed-Use District, Planned Development District, and a general Mixed Use District.

  - Quantity/Quality of mixed-use structures: The aerial map below shows differing land uses in the area at and surrounding the TOD site.



The dark blue shape outlining the Wilmington train station is in the center of this aerial image. To the north are high-density commercial and residential areas interconnected by side streets, sidewalks, and some bike lanes, as well as multi-modal park-path networks. Schools are circled in blue. Various businesses are spread throughout the station area (they are marked with orange Cs). Health facilities in the area are circled in red, and Widener University is noted to the east. Churches are circled in yellow.

The graph below provides the zoning percentage breakdown for the Wilmington station area in acreage.



- Vertical/horizontal mixed use

  The Wilmington city zoning code does include provisions for vertical mixed uses within buildings as well as horizontal mixed uses as mentioned above. Such allowances are enumerated in Wilmington's mixed-use zoning district ordinances.

- Access to:

  - ✓ Food (grocery store, restaurants, farmer's market): Yes
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): Yes
  - ✓ Health Care (hospital, doctor's office, pharmacy): Yes
  - ✓ Education (school, university, libraries): Yes
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): Yes

- *Density (4)*

  Approximate 2010 population within the ½-mile radius of the Wilmington station area is 4,850, with the highest density existing northeast of the station area.

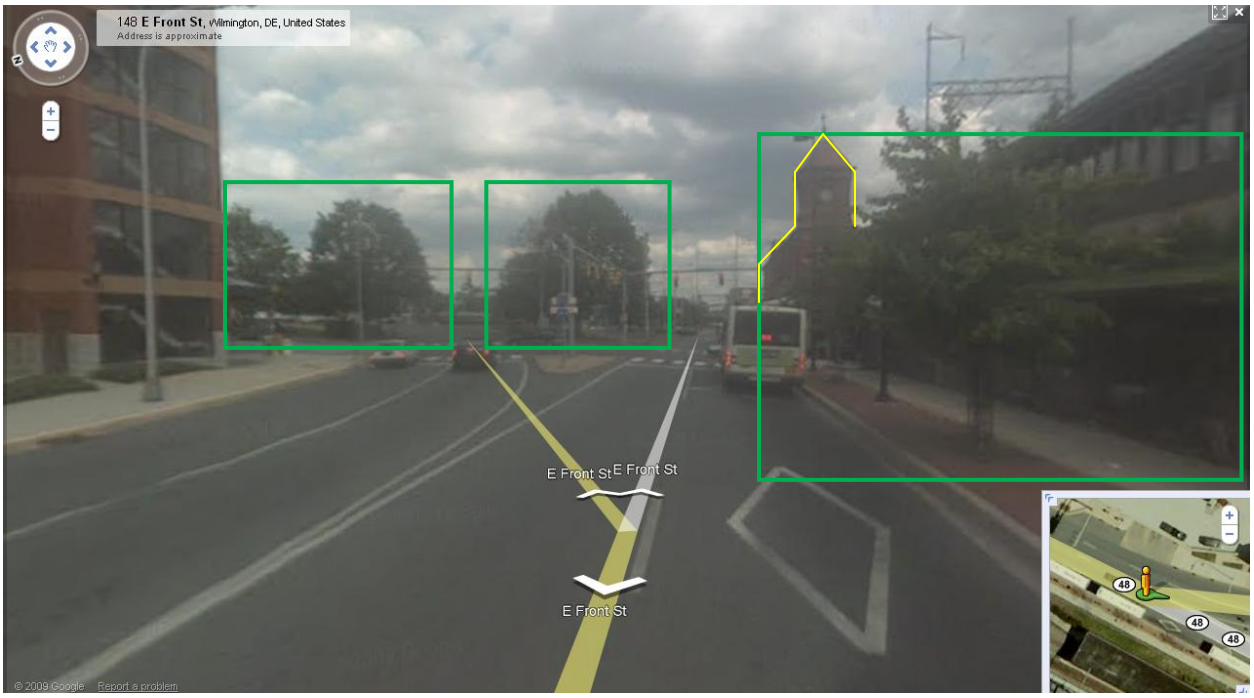
- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (0)*

The City of Wilmington does not have a TDR ordinance.

- *Streetscape Design and Pedestrian Accessibility (1)*

  - Street Trees / Tree Medians / Sidewalk Buffers – Adequate

    The picture below shows street trees, tree medians, and sidewalk buffers that are incorporated into the environment leading to and at the train station (outlined in yellow).

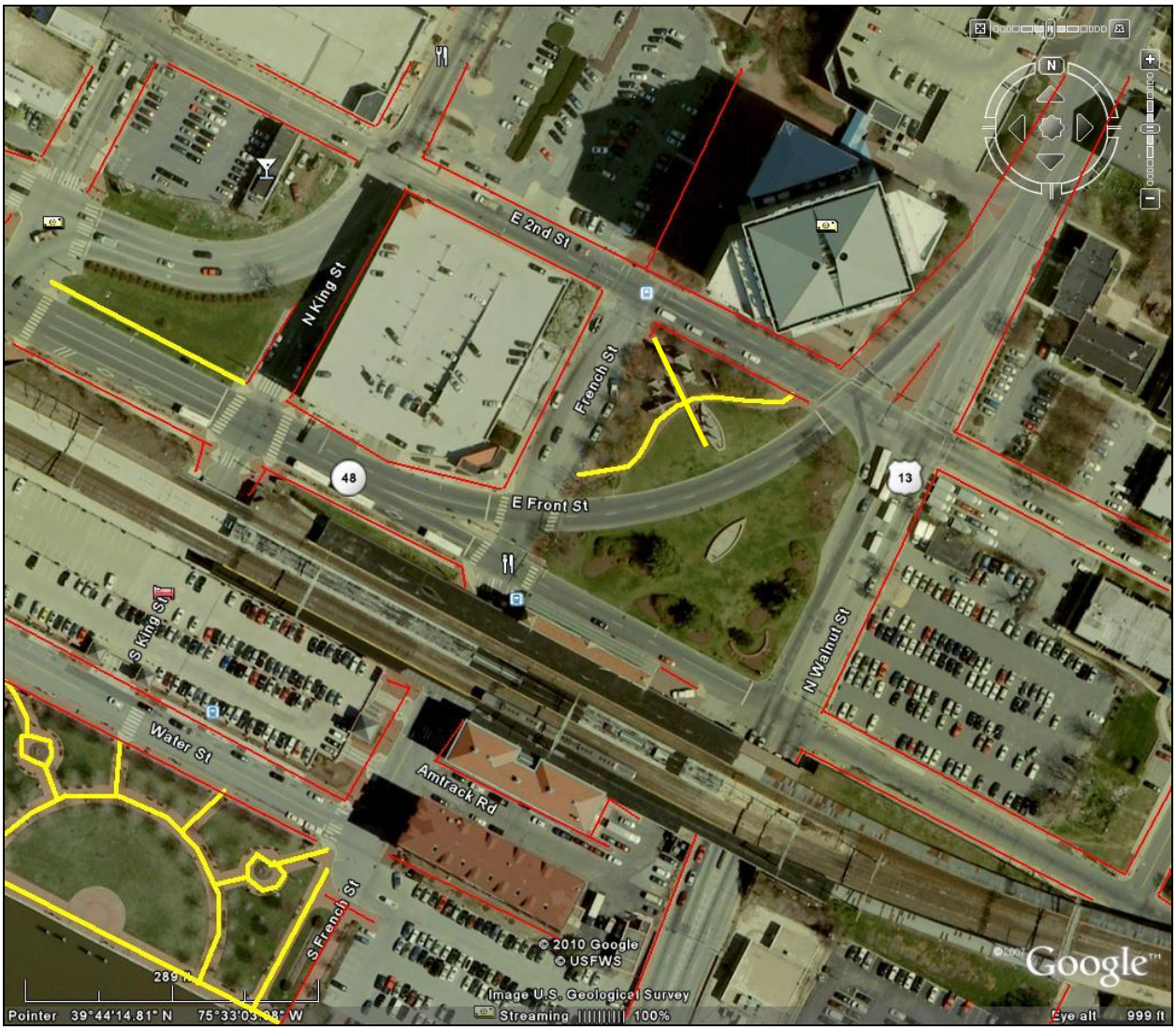


  - Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is satisfactory. Wilmington is a downtown metropolitan area, so the street grid is of high quality as compared to suburban areas. The following map shows the Wilmington train station as a red dot in the center of the image. The yellow circle surrounding the red dot marks a ½-mile radius around the train station. The background lines mark the street grid in the surrounding area adjacent to the station.

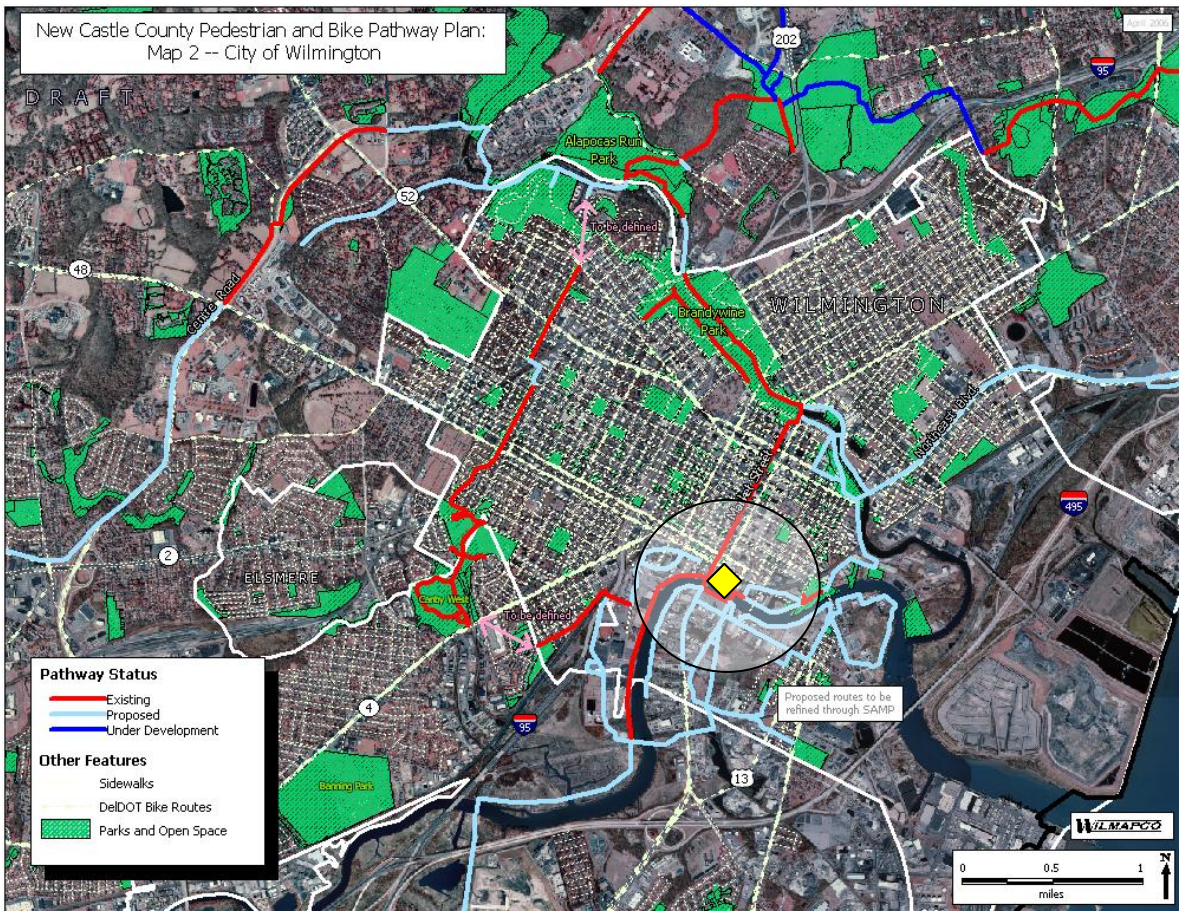
- Traffic-Calming

  - ✓ Speed Bumps - None
  - ✓ Traffic Circles - None

- Sidewalk Quality – Sidewalks are provided along Front Street, to and from the train station, and along roadways leading or adjacent to the train station. Sidewalks are highlighted in red. Multi-modal paths are highlighted in yellow. The sidewalks are of satisfactory quality for walking.



- Street Lights – The Wilmington station is lit with street lights along sidewalks.
  Bicycle facilities (lanes, racks, lockers) – The below map shows bicycle lanes in the Wilmington area. The yellow diamond shows the station location.



[167]

Bicycle racks and lockers are not located on-site at the Wilmington station.

- Multi-modal paths (does not include sidewalks) – Sidewalk networks dominate downtown Wilmington, but some multimodal paths are located near the train station within public park areas.

- *Parking*

  - ✓ Minimum vs. maximum parking standards

    The Wilmington code allows for parking-standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative-parking solutions.

  - ✓ Alternative parking

[167] Wilmington Area Planning Council, *New Castle County Pedestrian and Bike Pathway Plan: Map 2 – City of Wilmington* (Newark: Wilmington Area Planning Council, 2006), http://www.wilmapco.org/nccpathways/images/maps/April06/Map2_Apr06.jpg.

The City of Wilmington encourages alternative parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

Recommendations Moving Forward

1) *Minimum parking requirements in code should be reviewed for possible modification to allow for greater integration of alternative modes of transportation within requirements.*

2) *Reassess zoning to ensure maximum flexibility for higher density, transit-supportive design, and mixed use.*

Congruence with Regional Land Use Plan	**1**

The Wilmington train station and TOD area match the priorities, policies, and designated transportation investment areas defined in local, regional, and state planning documents in Delaware.

- Comprehensive Plan

  The Comprehensive Plan for the city of Wilmington supports the growth and development of downtown to support TOD.

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

  The WILMAPCO Regional Transportation Plan places the Wilmington TOD site in a Congestion Management System (CMS) Corridor,[168] which makes the site, along with other sites around the region, a priority area for fostering innovative transportation solutions.

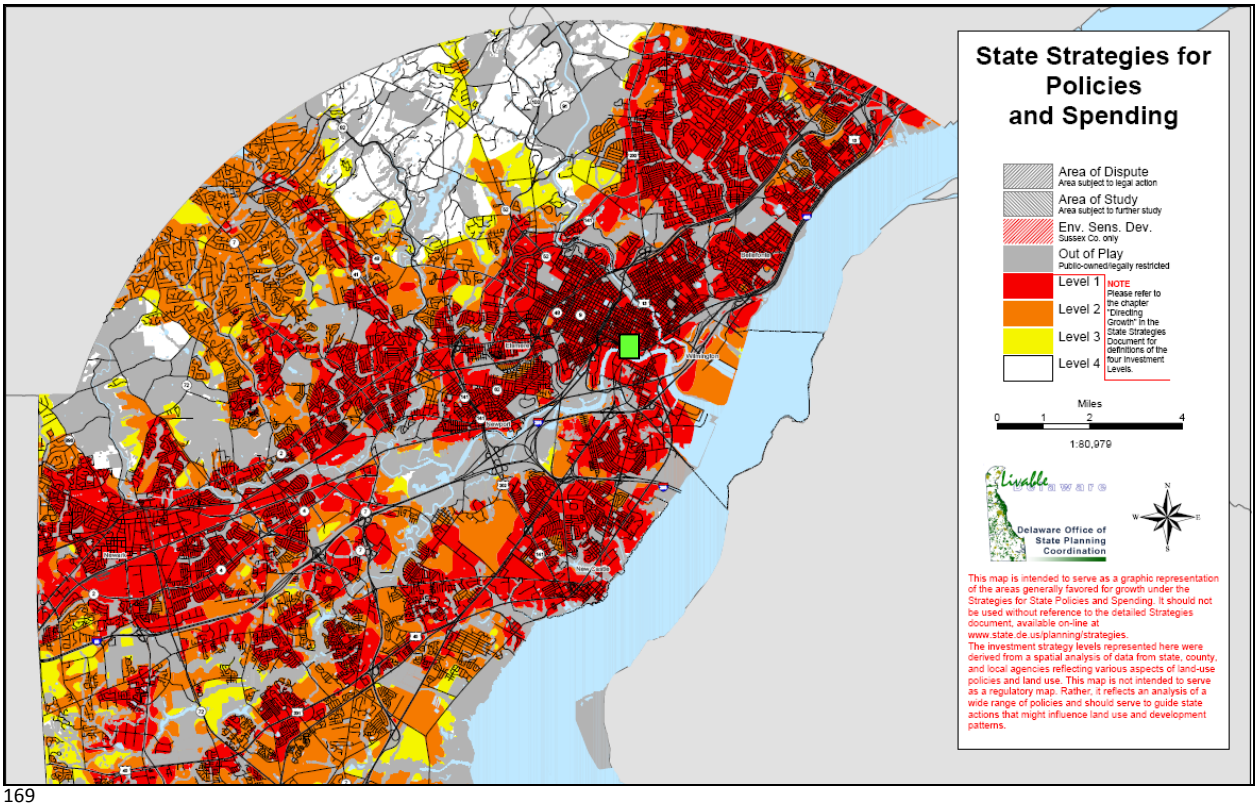
- Local Area Plan

  The Wilmington station and TOD site currently are located in two local area planning areas as defined by the New Castle County Major Sub Regional Studies map. One is the Wilmington Area Corridor that covers the Wilmington metropolitan area and the Wilmington Riverfront area, a smaller region covering only areas along the waterfront.

- Strategies for State Policies and Spending

[168] WILMAPCO, *Regional Transportation Plan: 2030 Update* (March 22, 2007), http://www.WILMAPCO.org/RTP/Final%202030%20RTP/2030_RTP_APPROVED_MARCH_2007_web.pdf, 26.

The Wilmington station and TOD site are located in a Level 1-priority area, as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1-priority area, the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.



169

- Intergovernmental Coordination

  Intergovernmental coordination is occurring at all levels. The City of Wilmington, the Federal Transit Administration, and the state of Delaware are in constant contact with each other as well as with other actors, regarding continued work on the Wilmington station restoration and renovation, which is funded through the American Recovery and Reinvestment Act.[170]

Recommendations Moving Forward

[169] Office of State Planning Coordination. *Delaware Strategies for State Policies and Spending: 5 Year* Update, (Dover: Office of State Planning Coordination, July 2004), http://stateplanning.delaware.gov/strategies/maps_04/ncco_ansi_d.pdf.
[170] Delaware Transit Corporation, *The Restoration & Renovation of the Historic Wilmington Amtrak Station May 2009 to February 2011*, (Wilmington: Delaware Transit Corporation), http://www.dartfirststate.com/press_releases/wilm_train/index.shtml.

1) *Intergovernmental coordination must continue to mature and expand* as restoration and renovation at the Wilmington site moves forward.

2) *Future Comprehensive Plans, Transportation Plans, Local-Area Plans, and other documents should incorporate more TOD language specific to the Wilmington site* to delineate it as a priority area in the state of Delaware. Station-area plans, transit-supportive zoning, and fast-track approval processes should be incorporated into plans at all levels to truly make TOD a primary piece of land use and transportation policy in Delaware.

Public Support	**1**

Since the Wilmington station is a popular, well-used station and a historical landmark for the city, public support for the station and possible enhancement through TOD is strong. The train station is more than 100 years old[171] and of vital importance to commuters throughout the region. Eighty-four Amtrak trains and 35 SEPTA trains serve the station each weekday.[172]

The source for public opposition to issues related to the Wilmington station and further TOD development will likely stem from concern over maintaining community character. In May 2008, *Preservation Magazine* reported some public concern over the station redesign plans. Talking about the Amtrak station redesign plan, Clarence Wright, Program Director for Mainstreet Wilmington, stated, "I'm not very happy with the plans that are on the table."[173] A visitor to the station and professional planner, Eileen Booth, was quoted saying, "Now they have wood, glass, brick; it creates a sense of place. Why create a place that's going to be unmemorable? There's a disconnect between [Amtrak's] discussion of their appreciation for the building and the architect and what they're doing to the inside of it."[174]

Recommendations Moving Forward

1) *Use community planning tools such as design charettes* to continue to engage the public throughout the Wilmington TOD renovation/restoration process as well as the greater planning process.

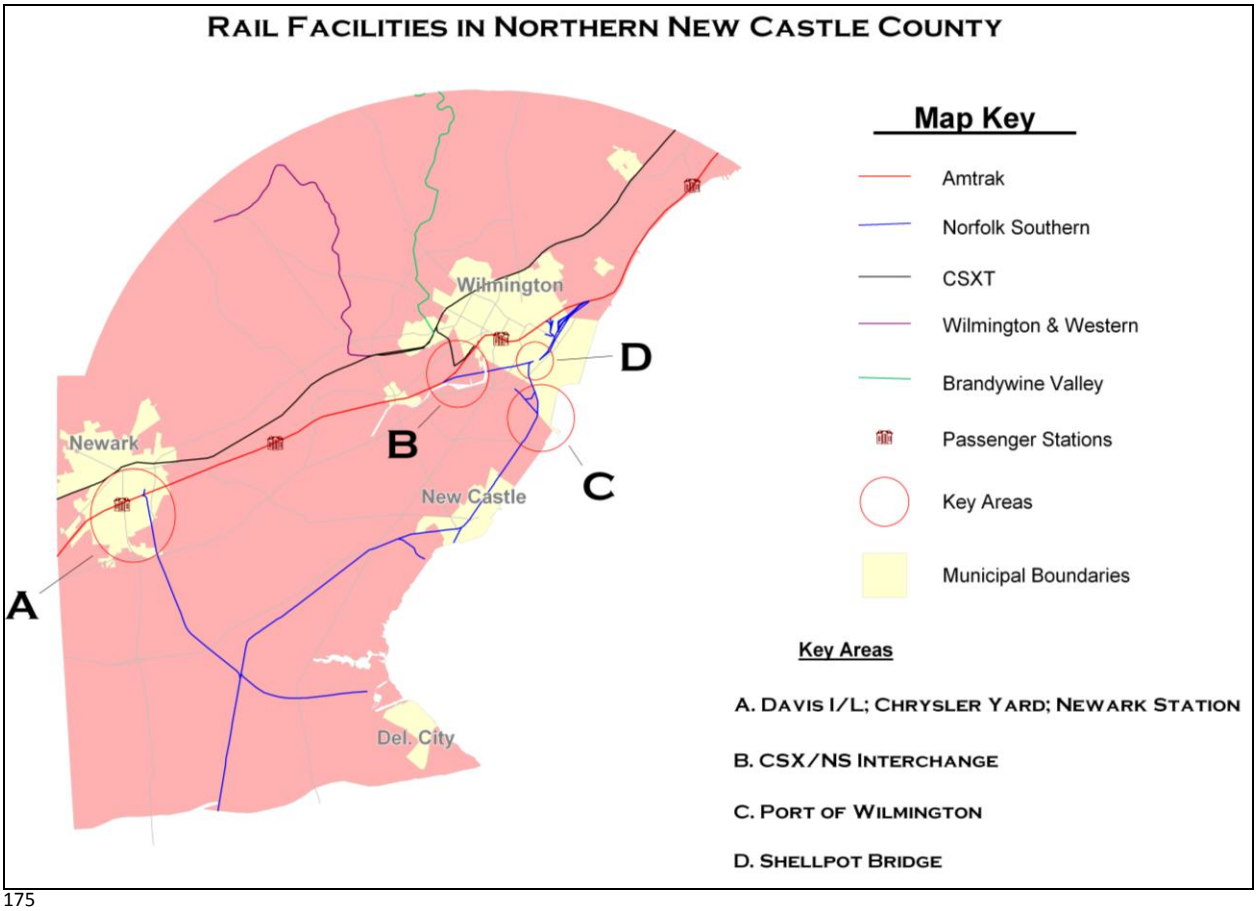
2) *Educate the public on the front end* about the utility of higher density and mixed uses, not during or in the later stages of the project. Be sure that the public sees the same short-term and long-term vision that the planners, architects, and public officials have.

[171] Ibid.
[172] Ibid.
[173] Foster, Margaret, *New Look for Frank Furness' 1907 Wilmington Train Station*, (Washington DC: Preservation Magazine, May 22, 2008), http://www.preservationnation.org/magazine/2008/todays-news/new-look-for-frank-furness.html.
[174] Ibid.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other programs can be used to connect people in the community with the planning process. Most of these programs are free and accessible online, thereby reducing potential costs associated with traditional methods for educating the public.

Public-Private Partnerships	**1**

The Wilmington train station is situated in a high-volume transportation corridor, specifically in an area crucial for freight-rail movement. Cooperation with private-sector freight-transportation providers has been necessary in the past and will be necessary in the future to keep commuter and freight lines open and accessible.



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Recommendations Moving Forward

[175] Kirkpatrick, Michael, *Shellpot Bridge Agreement: A Case for Public-Private Cooperation*, (Wilmington: Department of Transportation), 6.

1) *Address commuter rail vs. freight rail conflicts in the greater Wilmington area with Norfolk Southern* and CSX, so that freight operations are not negatively impacted.

Fully Integrated Transportation System	**1**

The Wilmington train station is fully integrated into the multi-modal transportation system in the area. Sidewalks, bike lanes, road networks, bus routes, and commuter rail all connect at the location. The New Castle County On-Road Bicycle Facilities Map created by DelDOT highlights several state, regional, and recreational bicycle routes that all converge on the TOD site area or the train station itself.[176] Multi-modal park paths extend along the Christina riverfront linking the station to multiple employment, recreational, residential, and commercial land uses.

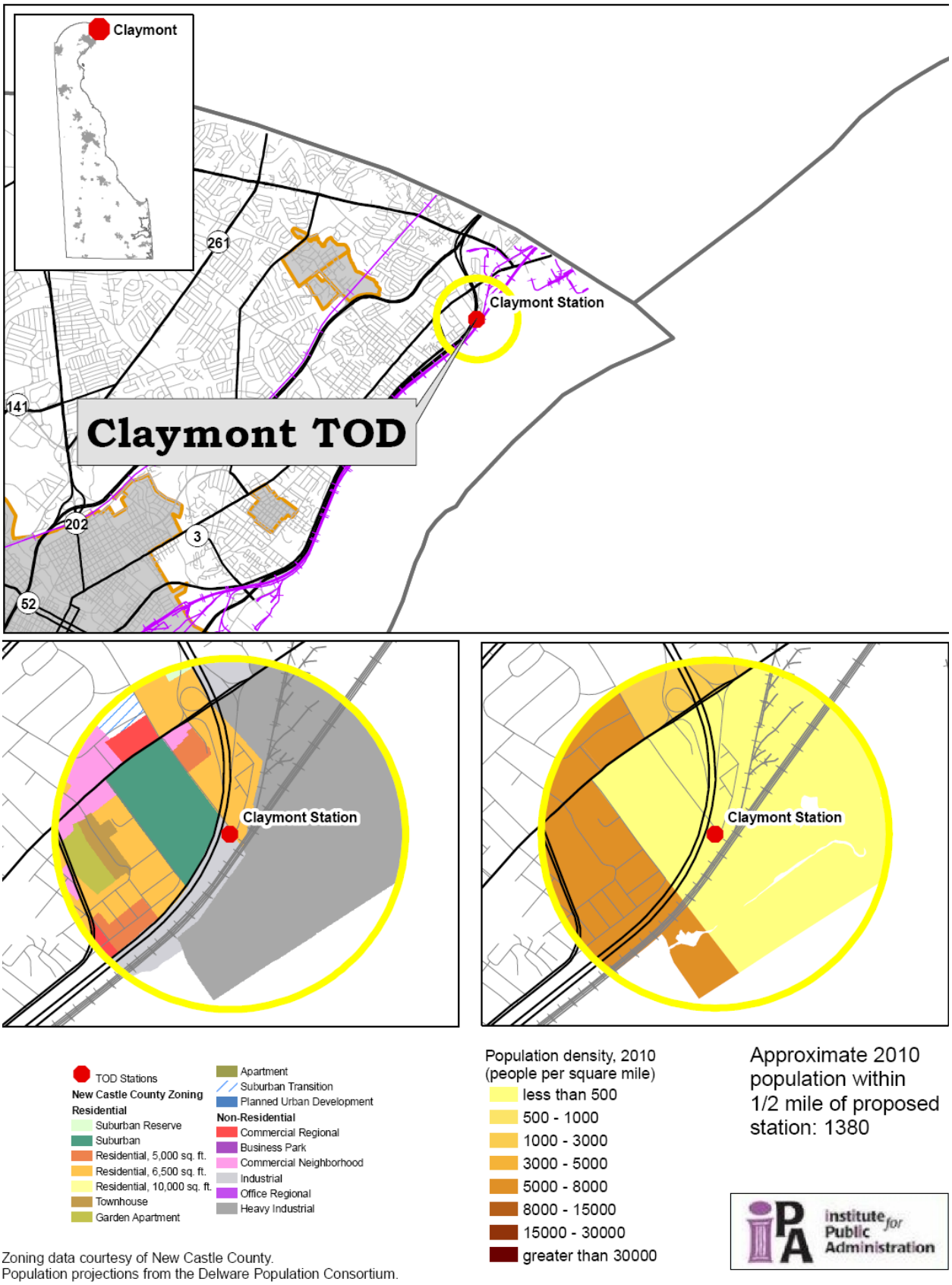
Recommendations Moving Forward

1) *The current transportation network in the Wilmington area could be enhanced by improved on-road bicycle facilities, bicycle lockers, and bicycle racks within the area inside a ½-mile radius of the station.* High traffic volume roads such as Martin Luther King Jr. Boulevard and Front Street would benefit from enhanced on-street bicycle lanes.

Claymont Commuter Rail Station

Total Site Evaluation Score: 8

[176] Delaware Department of Transportation, *New Castle County On-Road Bicycle Facilities* Map, (Dover: Delaware Department of Transportation, October 2005), http://www.wilmapco.org/data/demographics/PDF_Maps/DelDOT_NewCastle_RegionalBikeMaps_October2005.pdf.



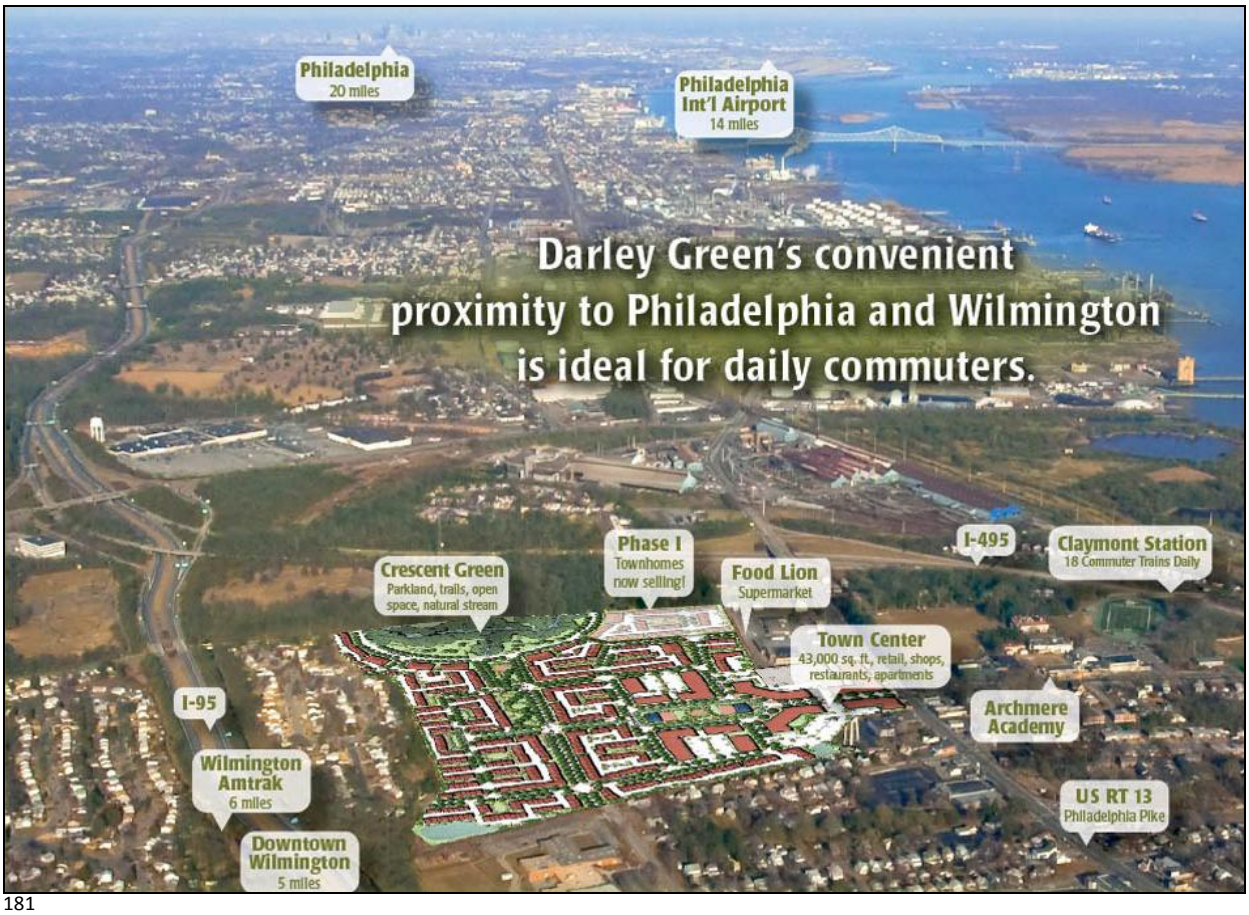
Zoning data courtesy of New Castle County.
Population projections from the Delware Population Consortium.

Existence of a high capacity/high volume transit station (rail, bus, BRT, metro, street car, etc.)	**1**

The Claymont commuter rail station handles approximately 678 boardings and 641 alightings on any given weekday.[177] Off-street parking is provided at the actual station as well as across from the station on the other side of I-495. Commuters use a pedestrian bridge to access the additional parking across from the station. On a given day more than 400 cars fill the parking lots at the Claymont station. Parking on-site at the Claymont station is essentially at capacity. Parking across the pedestrian bridge from the station still has additional parking (between 10-40 spots on average). DART First State bus routes 1 and 61 stop at the Claymont location daily.[178] The Claymont station's ticket office is not open weekdays; the station is wheelchair-accessible.[179]

With regard to future growth potential, the Claymont station will be impacted by the Darley Green project, a 1226 unit redevelopment project[180] currently under construction north of the station in Claymont. The graphic below shows an aerial view of the Darley Green site and is provided as a marketing image from the Darley Green developers.

[177] Southeastern Pennsylvania Transportation Authority. *FY2010 Annual Service Plan*. Philadelphia: Service Planning Department, June 2009. http://www.septa.org/reports/pdf/asp10.pdf, 64.
[178] Southeastern Pennsylvania Transportation Authority. *R2 Wilmington and Newark to/from Center City Philadelphia and Norristown*, January 17, 2010
[179] Ibid.
[180] Chadderdon, Jesse, *Facing Public Outcry, DelDOT drops plans to widen Darley Road*, (Claymont: CommunityPub.com, October 5, 2009), http://www.communitypub.com/brandywine/x1991999857/Facing-public-outcry-DelDOT-drops-plans-to-widen-Darley-Road.



181

Recommendations Moving Forward

1) *The Claymont station must be further integrated and connected to the greater Claymont community located northwest of the station.* With Darley Green and other development occurring in Claymont in the coming years the train station must be accessible to new residents. This is a challenge given the station's secluded location, seemingly barricaded on all sides by roads, waterways, and lack of pedestrian facilities.

    a. *Myrtle Avenue, Marion Avenue, Governor Printz Boulevard, and Manor Avenue all lack ideal pedestrian facilities and bicycle facilities*. The most immediate need concerns Myrtle Avenue, the primary access road to the train station that currently lacks sidewalks. Of greater concern is the need to create place in areas adjacent to and surrounding the station to make Claymont a "destination" of sorts. Darley Green represents the beginning of that process.

[181] The Commonwealth Group, *Darley Green: Aerial View,* (Wilmington: The Commonwealth Group), http://www.darleygreen.com.

2) *The station parking must be expanded immediately to accommodate current and future commuters.* Currently, parking both on-site and across the pedestrian bridge is at or near capacity.

Adequate Zoning	**4**

The zoning at and around the Claymont commuter rail station is satisfactory for TOD conversion. The unique mix of business, residential, recreational, and institutional land uses in the nearby vicinity make zoning changes or recommendations irrelevant to an extent. Even if current TOD-friendly land uses were not in place, Wilmington has mixed-use zoning ordinances, circulation plans, and density allowances to help facilitate the process.

Sub-Factors

- *Station-Area Plans/Circulation Plans (1)*

  Although Claymont does not have a Station-Area Plan as defined by transportation expert Gwen Chisholm on page 36 of this document, through the completion of various related plans, Claymont currently has many of the pieces that go into a true Station Area Plan in place. The consultant firm Kise, Straw, and Koldner, in affiliation with WILMAPCO, created "a concept plan for an upgraded Claymont Train Station including:

  -All necessary roadway improvements
  -Upgraded pedestrian, bicycle, and bus amenities
  -Expanded automobile parking areas
  -New rail facilities"[182]

  This plan incorporates information regarding the greater Claymont community adjacent to the commuter rail station such as area-wide land use configuration, transportation infrastructure adjoining the station, and future development expected northwest of the station. A Claymont Transportation Plan, produced in 2003 by DelDOT, "calls for extensive improvements to Philadelphia Pike to return it to its function as the commercial main street of the community. Landscaping, improved intersection controls and pedestrian improvements are included"[183] in the plan as well. The Claymont Community Redevelopment Plan was published in 2004 and "created a comprehensive vision for the community, set goals, and completed a plan to create a Hometown

[182] Kise, Straw, and Koldner and the Wilmington Area Planning Council. *Claymont Station Improvement Project*. (Newark: Wilmington Area Planning Council), http://www.wilmapco.org/claymont/Claymont%20_Station_Plan_Final.pdf, 9.
[183] Ibid., 13.

Overlay District, as set out in the 2002 New Castle County Comprehensive Plan Update."[184] The Claymont Community Redevelopment Plan also calls for the following:

- Revitalizing the Claymont Center
- Beautifying the Philadelphia Pike
- Maintaining and improving pedestrian circulation
- Maintaining and enhancing an interconnected transportation system
- Providing attractive, diverse, and affordable housing
- Protecting, preserving, and rehabilitating historic resources[185]

In 2004 a Design Guidelines Manual was released, which was developed based on the general vision and goals of the Claymont Community Redevelopment Plan.[186] The Design Guidelines Manual covered issues including building placement, interface with adjacent properties, historic resources, open space, public seating, public art, lighting, landscaping, pedestrian and bicycle facilities, parking and transit stops.[187]

In 2002 the Retail Market and Development Feasibility Analysis was completed for Claymont. The study evaluated economic feasibility of the "Idealized Build-out Plan 2"—proposed Claymont redevelopment plan.[188] The redevelopment plan featured a new town center, retail establishments, restaurants, and service businesses as part of a downtown revitalization effort in Claymont.[189] The study found that existing commercial demand would not support a new town center in Claymont as the "Idealized Build-out Plan 2" called for, but that anticipated residential development occurring in and around Claymont would provide the additional demand needed to support development of the town center and associated construction.[190]

Additional Claymont Train Station Plans were completed in 1990, 1996, and 1999.

- *Transit-supportive Zoning (0)*

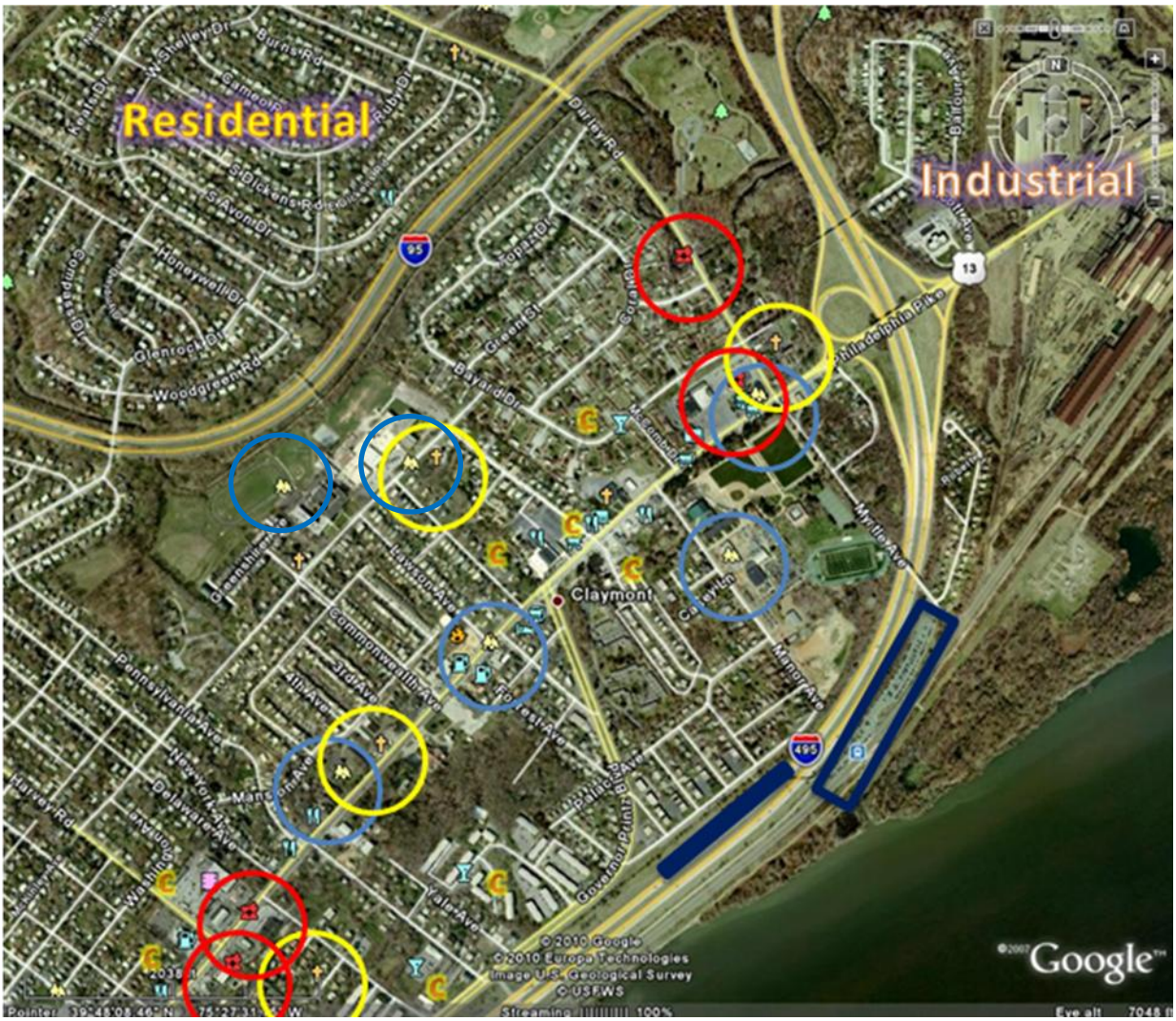
  The New Castle County Code and local Claymont zoning map do not have transit-supportive zoning districts defined in the Claymont station area.

- *Mixed Use (1)*

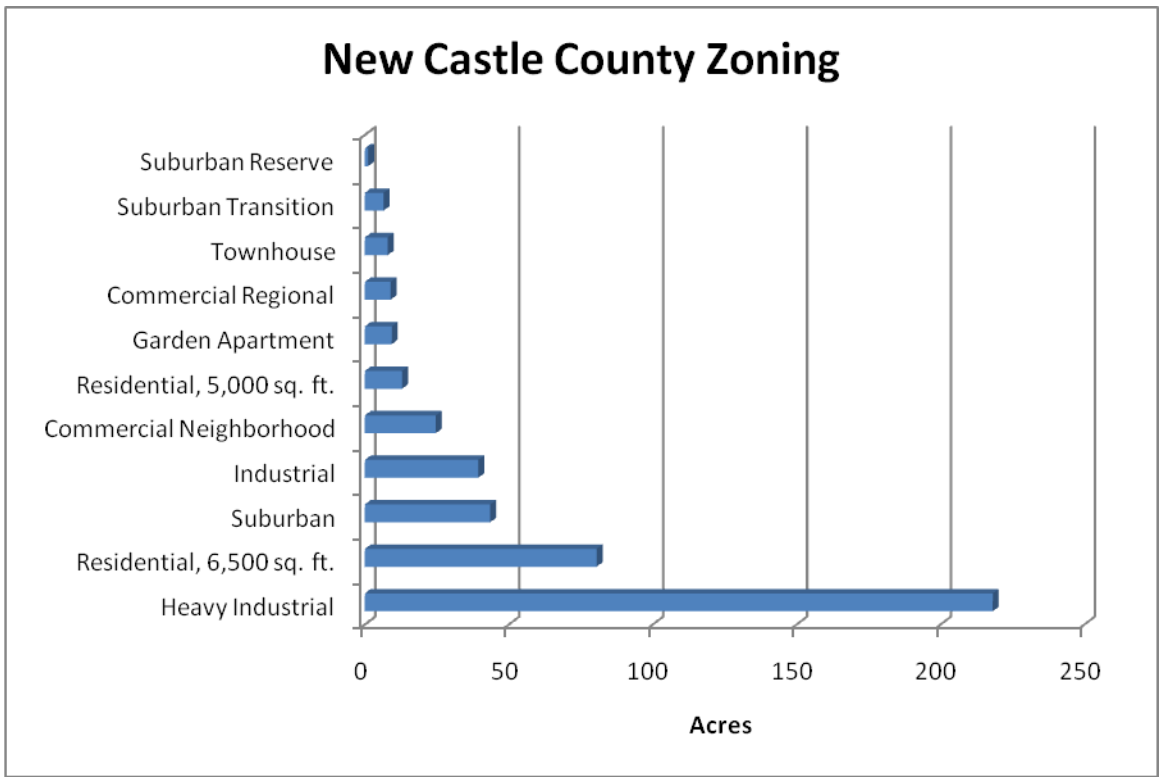
  Claymont has mixed-use zoning districts included in code.

[184] Ibid.
[185] Ibid.
[186] Ibid.
[187] Ibid.
[188] Ibid., 14.
[189] Ibid.
[190] Ibid.

- Quantity/Quality of mixed-use structures: The below aerial map shows differing land uses in the area at and surrounding the TOD site.



The dark blue shape outlining the Claymont train station is in the lower right of this aerial image. To the north are high-density commercial and residential areas interconnected by side streets, and sidewalks. Schools are circled in blue. Various businesses are spread throughout the station area (they are marked with orange Cs). Health facilities in the area are circled in red. All four red circles indicate the location of pharmacies. Churches are circled in yellow. The graph below shows the zoning percentage breakdown by acreage of zoning districts within the Claymont station area.



- Vertical/Horizontal mixed use

  The New Castle County zoning code does include provisions for vertical mixed uses within buildings as well as horizontal mixed uses.

- Access to:

  - ✓ Food (grocery store, restaurants, farmer's market): Yes
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): Yes
  - ✓ Health Care (hospital, doctor's office, pharmacy): Yes
  - ✓ Education (school, university, libraries): Yes
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): Yes

- *Density (1)*

  Approximate 2010 population within the ½-mile radius of the Claymont station is 1,380, with the highest density existing in the western region of the station area.

- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (1)*

New Castle County has a TDR ordinance that provides density bonuses and incentives for development of the Claymont site as well as other transit-oriented infill sites in New Castle County. On infill development bonuses, Division 40.07.600-610 of the New Castle County Unified Development Code reads:

> Areas designated by the Department for infill development shall be eligible for a development bonus. The infill development shall be for one (1) of five (5) types:
>
> 1. **Mixed uses development.** Mixed uses sites are zoned CR, ON, OR, BP, or I. The frontage adjoining the site must be in nonresidential use for a total distance of one thousand (1,000) feet including the site.
>
> 2. **Redevelopment.** Qualification standards and the process for review and approval of redevelopment sites are found in *New Castle County Code* Section 40.08.130 (B) (6).
>
> 3. **Infill.** These sites are zoned S, ST, or TN. Individual properties shall have a site size able to accommodate twenty-five (25) dwelling units at the open space planned development.
>
> 4. **Transit oriented infill.** The site shall be within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget.
>
> 5. **Employment infill.** The proposed infill project must be a generator of at least four hundred (400) jobs, and shall be located within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget. Further, the development shall be required to implement a travel demand management program approved by the Department.

Of particular importance is the fourth type, transit oriented infill, which would apply to the Claymont site.

- *Streetscape Design and Pedestrian Accessibility (0)*

  - Street Trees / Tree Medians / Sidewalk Buffers – Inadequate

    The picture below shows the lack of street trees, tree medians, and sidewalk buffers at the Claymont train station. This photo shows the entrance to the Claymont train station parking lot. On the next two pages of this report, you will see images of

Myrtle Street and Marion Avenue, which also lack sidewalk buffers, street trees, and tree medians.

- Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is satisfactory.

  Given the circumstances, the Claymont station area grid is satisfactory. With I-495, a rail line, and I-95 splitting the Claymont area apart, it is difficult to truly create a sustainable grid system. If we look at the station area specifically, road interconnectivity is existent, but sidewalk and biking-facility grid patterns are lacking.

- Traffic-Calming:

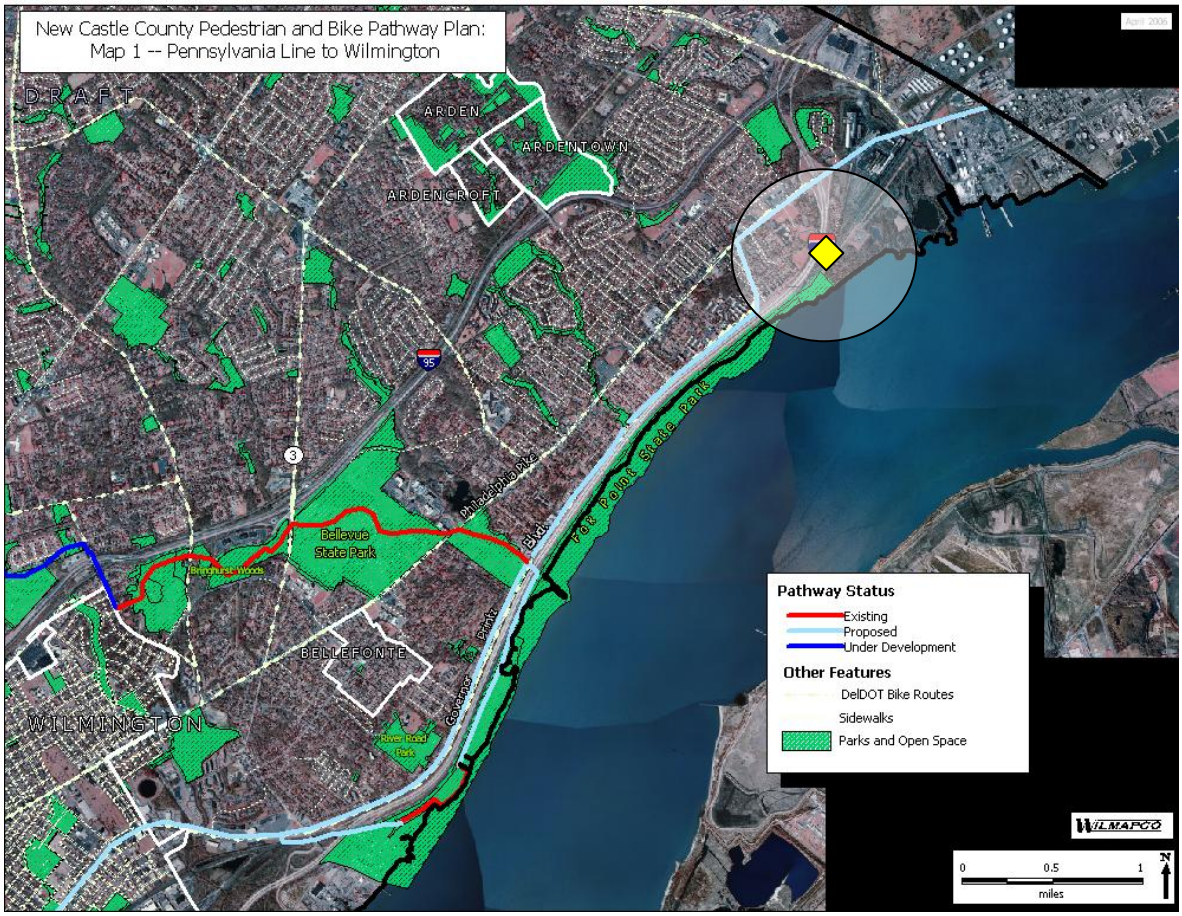
  - ✓ Speed Bumps - Yes
  - ✓ Traffic Circles - None

- Sidewalk Quality – Sidewalks are not installed along the sole roadway entrance to the station, Myrtle Street (see below):

Imagine trying to bike or walk along Myrtle Street (picture above) during peak rush hour at the Claymont Station. During these times, more than 400 cars are traveling in and out of the station. The below picture shows Marion Street, a dead-end side street with 40 houses that leads to the Claymont station entrance. Marion Street also lacks pedestrian and cyclist facilities.

- Street Lights – The Claymont train station is lit with street lights.

- Bicycle facilities (lanes, racks, lockers) – The below map shows bicycle lanes in the northern New Castle County area. None currently go through the Claymont area or the station area. One proposed pathway is planned to proceed north of the station extending southbound toward Wilmington along I-495 (see below). The yellow diamond shows the station location.



191

A minimum number of bicycle racks and lockers are located on-site at the Claymont station.[192]

- Multi-modal paths (does not include sidewalks) – There are no multi-modal paths in the general vicinity of the Claymont Station or surrounding area.

- *Parking*

  - ✓ Minimum vs. maximum parking standards

    The New Castle County code allows for parking-standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative-parking solutions.

[191] Wilmington Area Planning Council, *New Castle County Pedestrian and Bike Pathway Plan: Map 1 – Pennsylvania Line to Wilmington* (Newark: Wilmington Area Planning Council, 2006), http://www.wilmapco.org/nccpathways/images/maps/April06/Map2_Apr06.jpg.

[192] Wilmington Area Planning Council, *Claymont Station Improvement* Project, (Newark: Wilmington Area Planning Council,), http://www.wilmapco.org/claymont/Claymont%20_Station_Plan_Final.pdf, 3.

- ✓ Alternative parking

  New Castle County government encourages alternative parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

Recommendations Moving Forward

1) *Minimum parking requirements in code should be reviewed for possible modification to allow for greater integration of alternative modes of transportation within requirements.*

2) *Reassess zoning to ensure maximum flexibility for higher density, transit-supportive design, and mixed use.*

Congruence with Regional Land Use Plan	**1**

- Comprehensive Plan

  The New Castle County Comprehensive Plan supports the growth and development of downtown Claymont surrounding the train station to support TOD. Land areas surrounding the station are designated as high-density residential areas as well as Community Redevelopment Areas.[193]

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

  The WILMAPCO Regional Transportation Plan places the Claymont TOD site in a Core Transportation Investment Area,[194] which makes the site, along with other sites around the region, a priority area for fostering innovative transportation solutions.

- Local-Area Plan

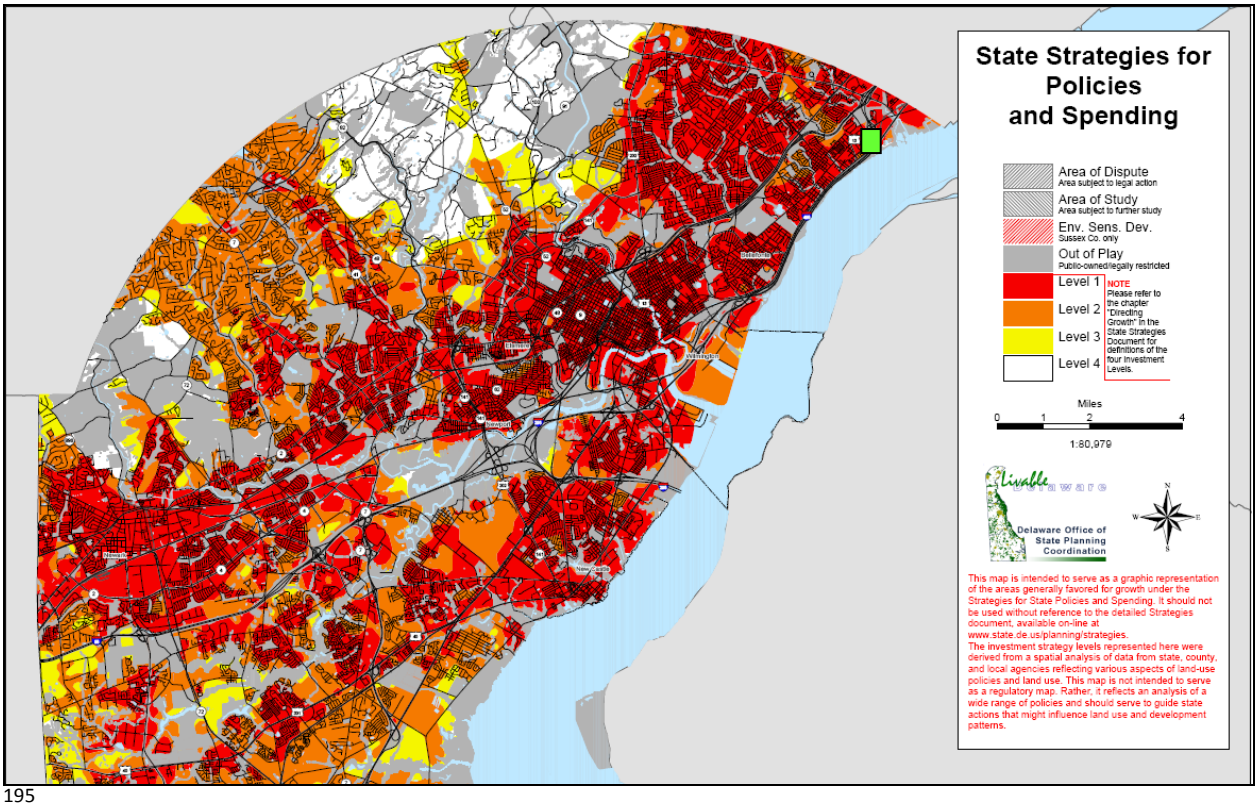
  The Wilmington station and TOD site currently are not located in any local area planning areas as defined by the New Castle County Major Sub Regional Studies map.

- Strategies for State Policies and Spending

[193] New Castle County Government, *New Castle County Comprehensive Plan*, [2007], http://www2.nccde.org/landuse/documents/PlanningComprehensivePlanDocuments/FutureLandUsePlanMapII-2.pdf

[194] WILMAPCO, *Regional Transportation Plan: 2030 Update* (March 22, 2007), http://www.WILMAPCO.org/RTP/Final%202030%20RTP/2030_RTP_APPROVED_MARCH_2007_web.pdf, 19.

The Claymont station and TOD site are located in a Level 1—priority area as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1—priority area, the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.



195

- Intergovernmental Coordination

  Intergovernmental coordination is occurring at all levels. WILMAPCO, New Castle County, DelDOT, DART, and the state of Delaware are in constant contact with each other as well as with other actors regarding continued work on solutions to eventual Claymont Train Station expansion.

Recommendations Moving Forward

1) *Intergovernmental coordination must continue to mature and expand* as station expansion and further community-planning efforts move forward.

[195] Office of State Planning Coordination. *Delaware Strategies for State Policies and Spending: 5 Year* Update, (Dover: Office of State Planning Coordination, July 2004), http://stateplanning.delaware.gov/strategies/maps_04/ncco_ansi_d.pdf.

2) *Future Comprehensive Plans, Transportation Plans, Local-Area Plans, and other documents should incorporate more TOD language specific to the Claymont site* to delineate it as a priority area in the state of Delaware. Station area plans, transit-supportive zoning, and fast-track approval processes should be incorporated into plans at all levels to truly make TOD a primary piece of land use and transportation policy in Claymont.

Public Support	**1**

Claymont residents want to connect with a newfound sense of community through creating Claymont as a destination in New Castle County. Citizens, businesses, elected officials, and academics alike have come together to orchestrate a *Claymont Renaissance*. The Claymont Renaissance Project facilitated through the Claymont Renaissance Development Corporation aims to.

- Increase employment, support existing businesses, and attract new businesses including retail, restaurants and entertainment.
- Focus on connecting community and civic assets, and creating a attractive place where people could live, work, shop, learn, and worship.
- Promote an attractive, friendly and pedestrian-oriented environment.
- Stimulate educational, arts, cultural activities and events.
- Encourage collaborative efforts with community organizations and surrounding areas.
- Attract an increasing number of visitors from throughout the region and beyond.[196]

This community-led project implements these above shared goals and objectives through coordination with a variety of local community groups:

Claymont Business Owners Association
Claymont Historical Society
Claymont Community Coalition
Claymont Community Center
Brandywine School District
Archmere Academy
Wilmington University
University of Delaware
Claymont Fire Company
Claymont Houses of Worship

The goals and objectives of the Claymont Renaissance Project are in line with the goals and objectives of TOD, such as the desire to make Claymont an employment and business center,

[196] Claymont Renaissance Development Corporation, *Our Mission*, http://www.claymontrenaissance.org/atc-mission.html.

the focus on pedestrian-oriented development, and the desire to create a destination in which people can live, work, play, and worship.

Recommendations Moving Forward

1) *Use community planning tools such as design charettes* to continue to engage the public throughout the Claymont Renaissance process.

2) *Educate the public on the front end* about the utility of higher density and mixed uses, not during or in the later stages of projects. Be sure that the public sees the same short-term and long-term vision that the planners, architects, and public officials have.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other tools can be used to connect people in the community with the planning process. Most of these programs are free and accessible online, thereby reducing potential costs associated with traditional methods for educating and engaging the public.

Public-Private Partnerships	**1**

Continued cooperation and coordination with Claymont business owners and developers especially actors such as the Commonwealth Group (Darley Green) will be crucial to the future success in emerging Claymont as a key destination in the northern Delaware area. Coordination with respect to the planning process, development design guidelines, and ordinance barriers must continue between government actors and the private sector to ensure that sustainable economic development, business growth, and job creation continues to occur in Claymont.

Recommendations Moving Forward

1) *Address commuter rail vs. freight rail conflicts in the greater Wilmington area with Norfolk Southern* and CSX so that freight operations are not negatively impacted.

Fully Integrated Transportation System	**0**

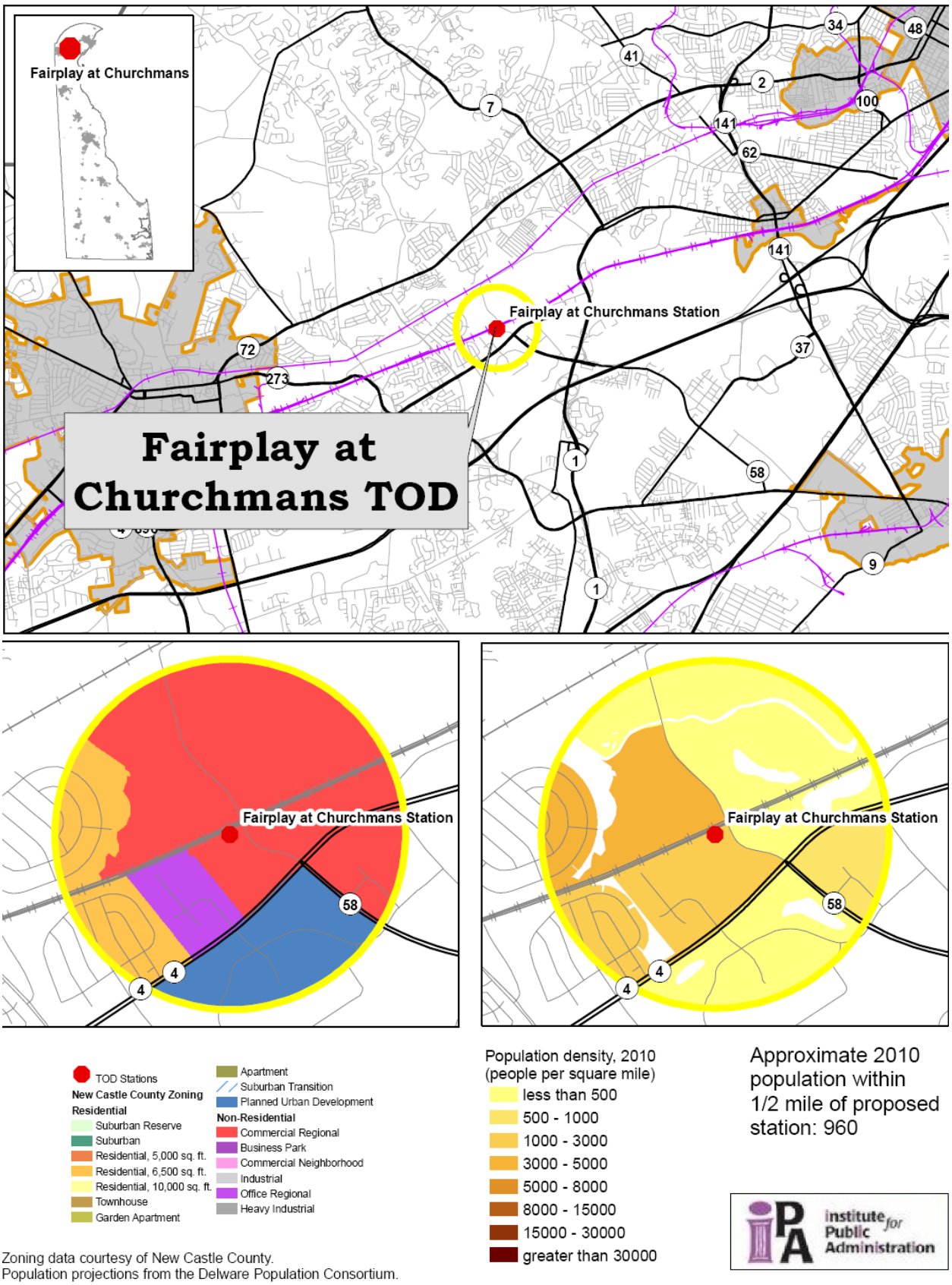
The Claymont train station is not fully integrated into the multi-modal transportation system in the area. No sidewalks, multi-modal walkways, or bike paths lead to the station along major access routes.

Recommendations Moving Forward

1) *The current transportation network in the Claymont area could be enhanced by improved sidewalks, multi-modal pathways, on-road bicycle facilities, bicycle lockers, and bicycle racks within the area inside a ½ mile radius of the station.* All access roads leading to the station should have these baseline facilities to ensure multi-modal access and interconnection.

Churchman's Crossing Commuter-Rail Station

Total Site Evaluation Score: 3



Zoning data courtesy of New Castle County.
Population projections from the Delware Population Consortium.

Existence of a high capacity/high volume transit station (rail, bus, BRT, metro, street car, etc.)	**1**

The Churchman's Crossing commuter rail station is satisfactory for conversion into a TOD site. The Churchman's Crossing commuter rail station handles approximately 275 boardings and 227 alightings on any given weekday.[197] Substantial off-street parking spaces are available at the facility, and on a normal weekday the majority of the spaces are used by commuting drivers. Overnight or multi-day parking is also available for train commuters traveling long distances. DART First State bus routes 5, 33, 39, 59, 62, and 63 stop at the Churchman's Crossing location daily.[198] Bus shelters are available on-site. The Churchman's Crossing station's ticket office is not open weekdays, and the station is wheelchair accessible.[199]

With regard to future growth potential, the Churchman's Crossing station is well positioned for private sector investment, given its location alongside large-scale health service providers like Christiana Care Health System as well as other commercial interests such as Delaware Park and Center Point Plaza. Additionally, the station is in close proximity to the Christiana Mall and major roadways such as I-95.

Recommendations Moving Forward

1) *Continue to improve capacity in the Wilmington area for commuter rail service through cooperation with SEPTA, Amtrak, CSX, and Norfolk Southern.*

Adequate Zoning	**1**

The zoning at and around the Churchman's Crossing commuter rail station is not satisfactory for TOD conversion. Mixed-use zoning or station area planning is needed to facilitate the transformation of the site to TOD.

Sub-Factors

- *Station-Area Plans/Circulation Plans (0)*

  Currently no station-area plans or circulation plans for the TOD site have been completed.

- *Transit-supportive Zoning (0)*

[197] Southeastern Pennsylvania Transportation Authority. *FY2010 Annual Service Plan*. Philadelphia: Service Planning Department, June 2009. http://www.septa.org/reports/pdf/asp10.pdf, 65.
[198] Southeastern Pennsylvania Transportation Authority. *R2 Wilmington and Newark to/from Center City Philadelphia and Norristown*, January 17, 2010
[199] Ibid.

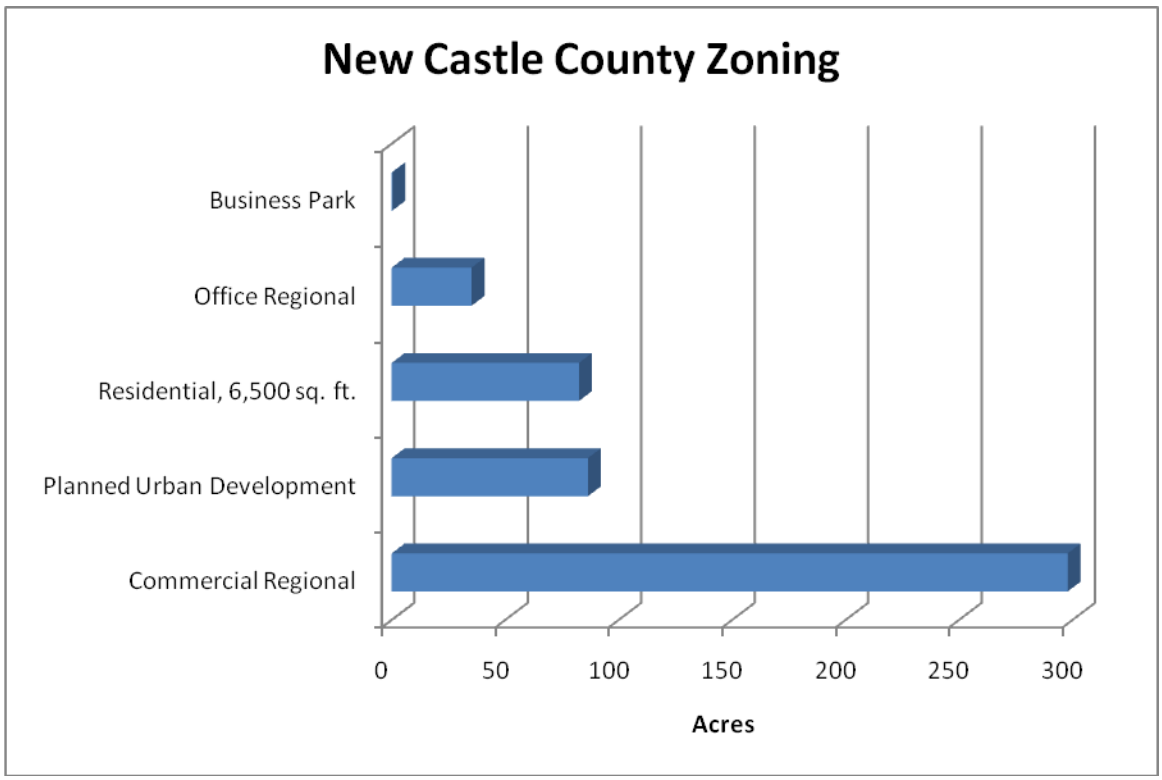
The New Castle County Code and local Churchman's Crossing zoning map do not have transit-supportive zoning districts defined in the Churchman's Crossing station area.

- *Mixed Use (0)*

  Mixed-use zoning does not exist at or surrounding the Churchman's Crossing station.

  - Quantity/Quality of mixed-use structures: The aerial map below shows differing land uses in the area at and surrounding the TOD site.

The SEPTA logo marks the Churchman's Crossing train station location in the center of this aerial image. Below provides the zoning percentage breakdown for the Churchman's Crossing station area in acreage:



- Vertical/Horizontal mixed use

  The New Castle County zoning code does include provisions for vertical mixed uses within buildings as well as horizontal mixed uses.

- Access to:
  - ✓ Food (grocery store, restaurants, farmer's market): No
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): No
  - ✓ Health Care (hospital, doctor's office, pharmacy): Yes
  - ✓ Education (school, university, libraries): No
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): Yes

- *Density (0)*

  Approximate 2010 population within the ½-mile radius of the Churchman's Crossing station is 960, with the highest density existing in the northwestern region of the station area.

- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (1)*

New Castle County has a TDR ordinance that provides density bonuses and incentives for development of the Claymont site as well as other transit-oriented infill sites in New Castle County. On infill development bonuses, Division 40.07.600-610 of the New Castle County Unified Development Code reads:

> Areas designated by the Department for infill development shall be eligible for a development bonus. The infill development shall be for one (1) of five (5) types:
>
> 6. **Mixed uses development.** Mixed uses sites are zoned CR, ON, OR, BP, or I. The frontage adjoining the site must be in nonresidential use for a total distance of one thousand (1,000) feet including the site.
>
> 7. **Redevelopment.** Qualification standards and the process for review and approval of redevelopment sites are found in *New Castle County Code* Section 40.08.130 (B) (6).
>
> 8. **Infill.** These sites are zoned S, ST, or TN. Individual properties shall have a site size able to accommodate twenty-five (25) dwelling units at the open space planned development.
>
> 9. **Transit oriented infill.** The site shall be within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget.
>
> 10. **Employment infill.** The proposed infill project must be a generator of at least four hundred (400) jobs, and shall be located within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget. Further, the development shall be required to implement a travel demand management program approved by the Department.

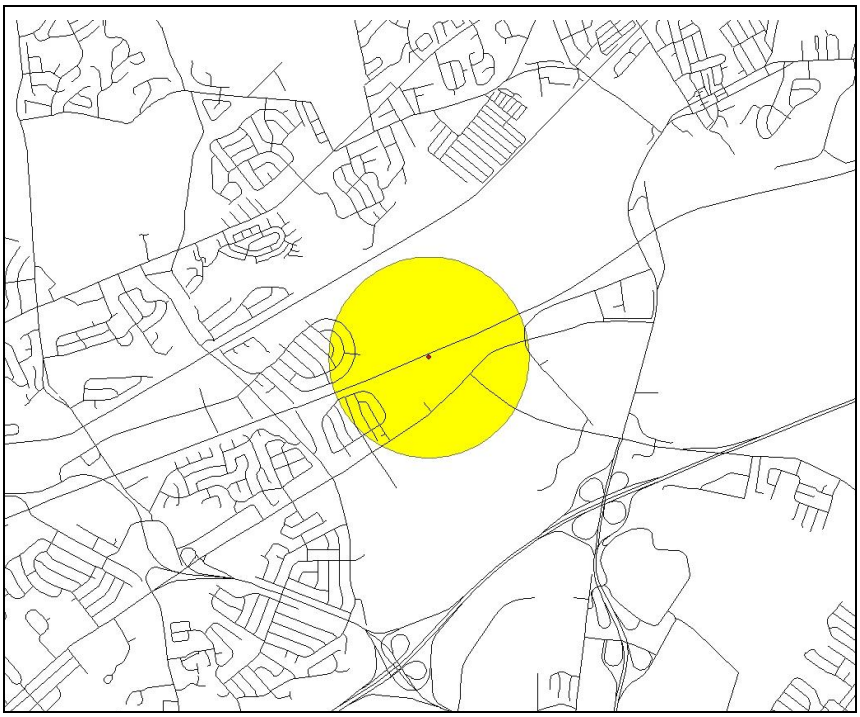
Of particular importance is the fourth type, transit oriented infill, which would apply to the Churchman's Crossing site.

- *Streetscape Design and Pedestrian Accessibility (0)*

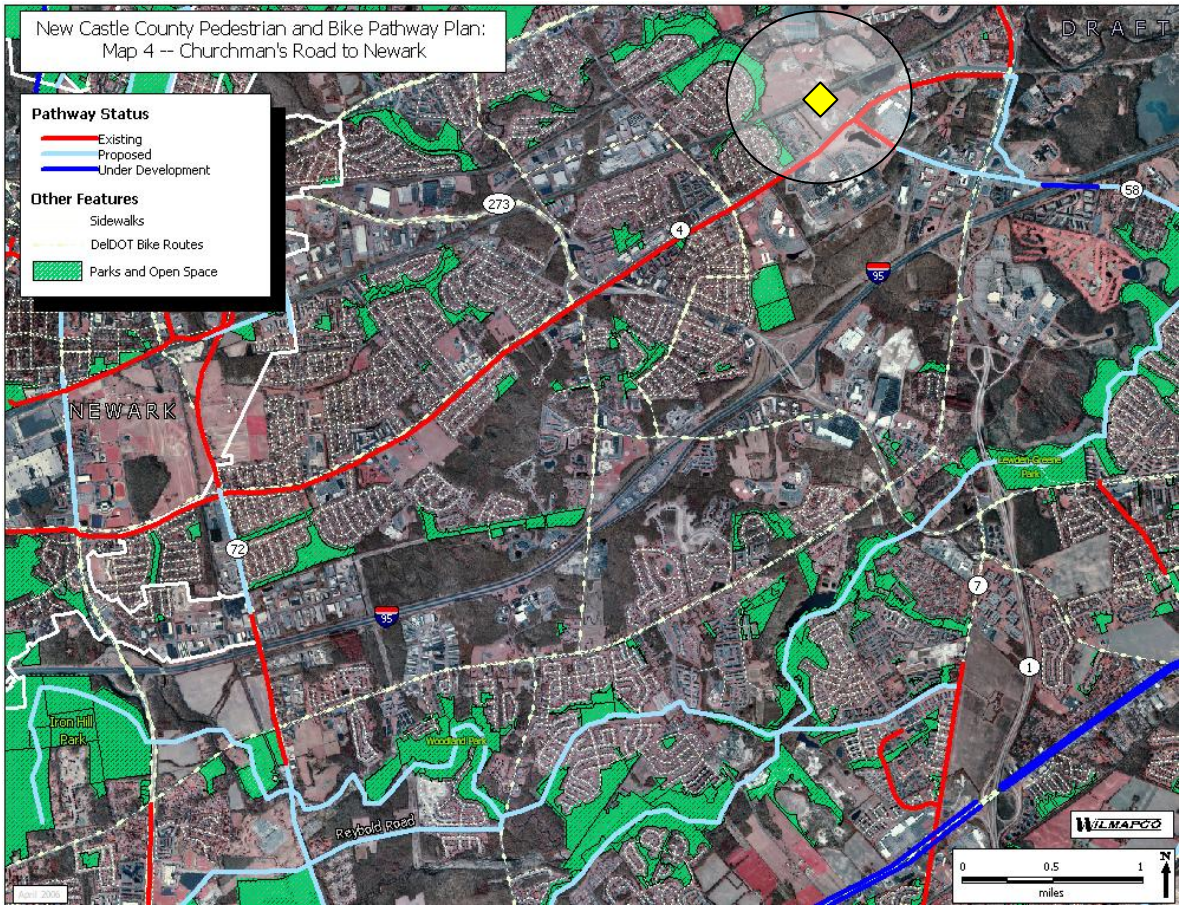
  - Street Trees / Tree Medians / Sidewalk Buffers – Minimal to None

  - Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is non-existent in much of the area surrounding the station because the station is surrounded by undeveloped greenfields. The residential and commercial areas to the west of the

station are not well connected, and the road networks in such developments do not follow a grid pattern, but instead a curvilinear pattern. Of greater importance will be the emerging street grid that is created as a result of any future Churchman's Crossing TOD construction at the station. The following map shows the Churchman's Crossing train station as a red dot in the center of the image. The yellow circle surrounding the red dot marks a ½-mile radius around the train station. The background lines mark the street grid in the surrounding area adjacent to the station.



- Traffic-Calming
  - Speed Bumps - None
  - Traffic Circles - None
- Sidewalk Quality – Sidewalks are located at the station and on some major roads leading to the station. The sidewalks that are installed are generally of satisfactory quality for walking.
- Street Lights – Parking lot lights are installed on-site at the Churchman's Crossing station.
- Bicycle facilities (lanes, racks, lockers) – The map below shows bicycle lanes in the Churchman's Crossing area. The yellow diamond shows the station location.

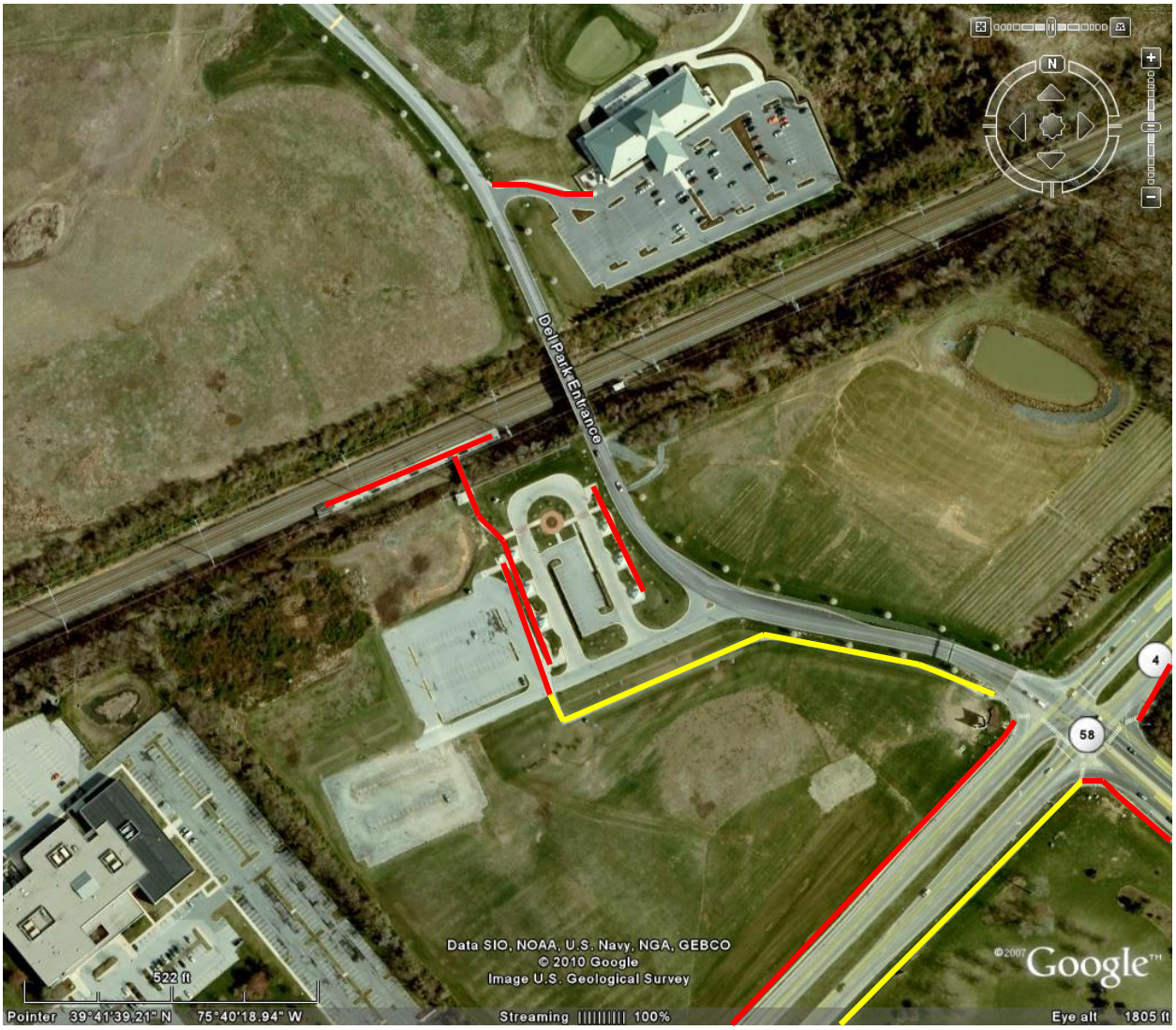


[200]

The Churchman's Crossing site has bicycle locker facilities and a small bike rack on-site for cyclists.

- Multi-modal paths (does not include sidewalks) – Multi-modal paths exist to the south and southeast of the Churchman's Crossing station. Below shows the multi-modal path and sidewalk network extending within the Churchman's Crossing train station.

[200] Wilmington Area Planning Council, *New Castle County Pedestrian and Bike Pathway Plan: Map 4 – Churchman's Road to Newark* (Newark: Wilmington Area Planning Council, 2006), http://www.wilmapco.org/nccpathways/images/maps/April06/Map5_Apr06.jpg.



- *Parking*

  - Minimum vs. maximum parking standards

    The New Castle County code allows for parking-standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative-parking solutions.

  - Alternative parking

    New Castle County government encourages alternative-parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

Recommendations Moving Forward

1) *A Station Area Plan for the site should be completed* to put in motion certain site upgrades needed to make it more transit-supportive and in line with the long-term vision for the area as a feasible TOD. A *Station-Area Plan* would provide a roadmap for changing zoning, density, design requirements, and other ordinance components to better encourage TOD at the station area.

Congruence with Regional Land Use Plan	**1**

- Comprehensive Plan

The New Castle County Comprehensive Plan outlines the county's vision for the Churchman's Crossing TOD site moving forward. This vision is in support of high-density, community redevelopment that is necessary for successful TOD. The actual potential station location is in a county-defined Community Redevelopment Area, and other sections of the station area are located in high-density areas (9+ dwelling units/acre).[201]

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

The WILMAPCO Regional Transportation Plan places the Churchman's Crossing TOD site in a Congestion Management System (CMS) Corridor,[202] which makes the Churchman's Crossing TOD site along with other sites around the region a priority area for fostering innovative transportation solutions.

- Local-Area Plan

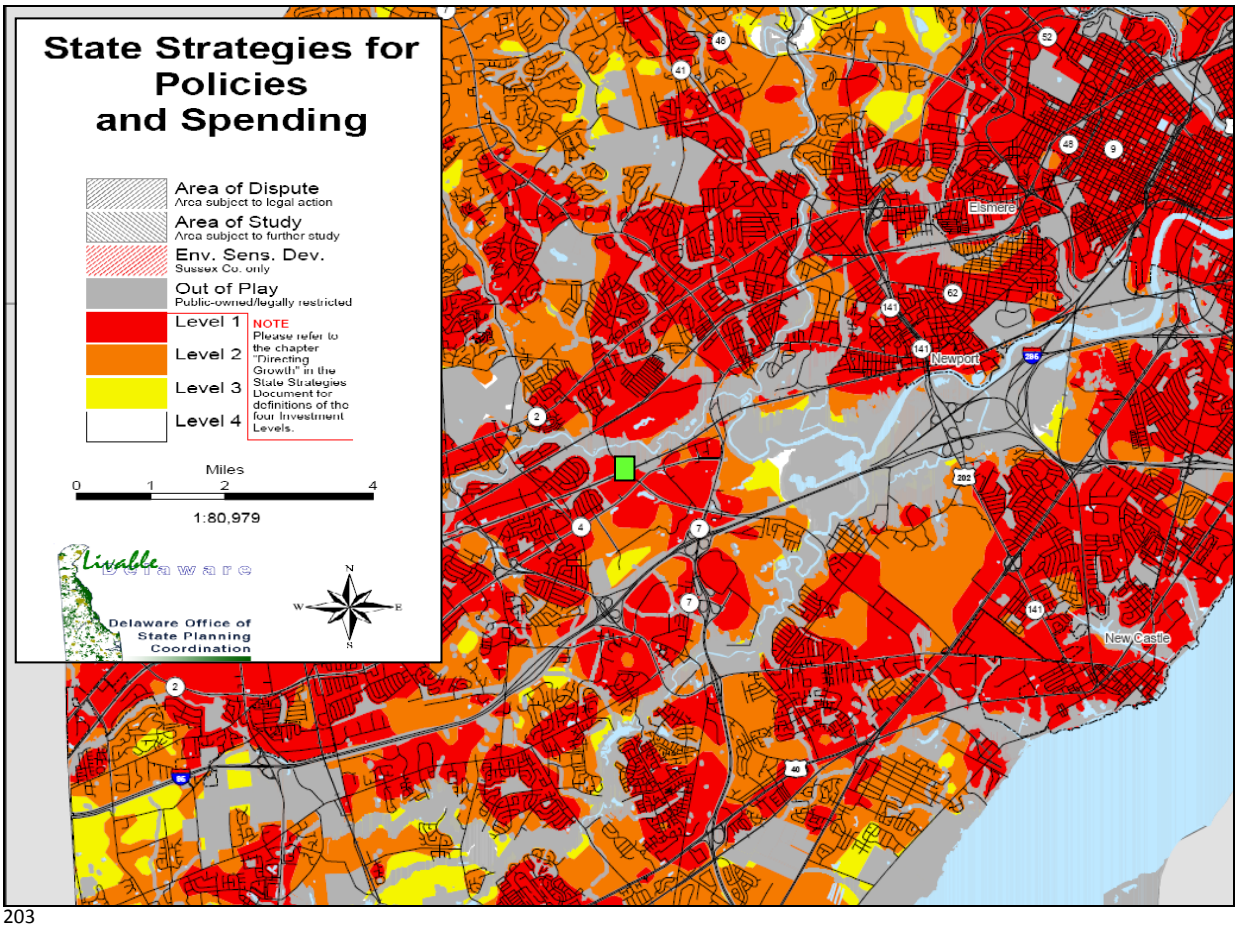
The Churchman's Crossing train station is currently located in the Churchman's Crossing sub-regional planning area as defined by the New Castle County Major Sub Regional Studies map.

- Strategies for State Policies and Spending

The Churchman's Crossing station and TOD site are located in a Level 1—priority area as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1—priority area, the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.

[201] New Castle County Government, *New Castle County Comprehensive Plan*, [2007], http://www2.nccde.org/landuse/documents/PlanningComprehensivePlanDocuments/FutureLandUsePlanMapII-2.pdf

[202] WILMAPCO, *Regional Transportation Plan: 2030 Update* (March 22, 2007), http://www.WILMAPCO.org/RTP/Final%202030%20RTP/2030_RTP_APPROVED_MARCH_2007_web.pdf, 26.



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- Intergovernmental Coordination

New Castle County government is currently working with state transportation officials as well as local WILMAPCO representatives to enhance the transportation system in the Churchman's Crossing area through road improvements that will include new bicycle and pedestrian facilities.

Recommendations Moving Forward

1) *Intergovernmental coordination must continue to mature and expand* as planning at the Churchman's Crossing site moves forward. Development of a Station-Area Plan at the Churchman's Crossing site should include local, regional, and state governmental actors as well as members of the community.

[203] Office of State Planning Coordination. *Delaware Strategies for State Policies and Spending: 5 Year* Update, (Dover: Office of State Planning Coordination, July 2004), http://stateplanning.delaware.gov/strategies/maps_04/ncco_ansi_d.pdf.

2) *Future Comprehensive Plans, Transportation Plans, Local Area Plans, and other documents should incorporate more TOD language specific to the Churchman's Crossing site* to delineate it as a priority area in the state of Delaware. Station area plans, transit-supportive zoning, fast track approval processes, and model mixed use zoning ordinances should be incorporated into plans at all levels to truly make TOD a primary piece of land use and transportation policy in Delaware.

Public Support	**0**

Public support for a Churchman's Crossing TOD cannot currently be assessed, given the fact that no real TOD proposal is on the table for public assessment.

Recommendations Moving Forward

1) *Use community-planning tools such as design charettes* to engage the public throughout the Churchman's Crossing TOD-planning process.

2) *Educate the public on the front end* about the utility of higher density and mixed uses, not during or in the later stages of the project.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other programs can be used to connect people in the community with the planning process.

Public-Private Partnerships	**0**

The Churchman's Crossing train station and TOD site is currently located in an important location that features Christiana Care Health System, Delaware Park, Center Point Plaza, and various other businesses in the greater station area. Any TOD site development would depend on cooperation and coordination with Delaware Park, the predominant land owner in the area surrounding the station. Since a Churchman's Crossing TOD is not currently under consideration at the Churchman's Crossing station, public-private partnerships have yet to fully develop.

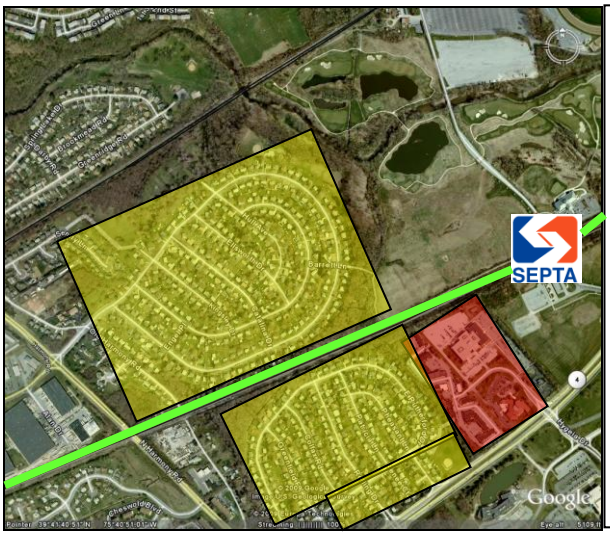
Recommendations Moving Forward

1) *Address commuter rail vs. freight rail conflicts as well as general infrastructure improvements in the Wilmington area with Norfolk Southern, Amtrak, SEPTA, and CSX.* This will ensure that service to the Churchman's Crossing station will not only be maintained, but enhanced, over the long term.

2) *Future efforts to establish TOD at the Churchman's site should be done in consultation with the larger business establishments in the nearby area to ensure that the TOD benefits the entire community and does not negatively impact the growth and development of the area over the long term.*

Fully Integrated Transportation System	**0**

The Churchman's Crossing train station is not fully integrated into the multi-modal transportation system in the area. Although sidewalks and other pedestrian facilities exist in the area as well as bicycle facilities on-site at the station, residential developments to the west of the station are largely disconnected from the station.



Development of greenfields immediately surrounding the Churchman's Crossing station could present opportunities for interconnection with land uses to the west that include two substantial residential neighborhoods located to the north and south of the rail line. The commercial land uses immediately west of the station could also be more interconnected with the station as well. The red shows commercial and yellow shows residential.

No major recreational-bicycle-connector routes, as defined by the New Castle County On-Road Bicycle Facilities Map created by DelDOT, exist in the nearby area surrounding the station.[204] Bike lanes are largely absent from the road network in the station area, although multi-modal paths extend along roads leading to and from the station. The station is also served by DART commuter buses.

Recommendations Moving Forward

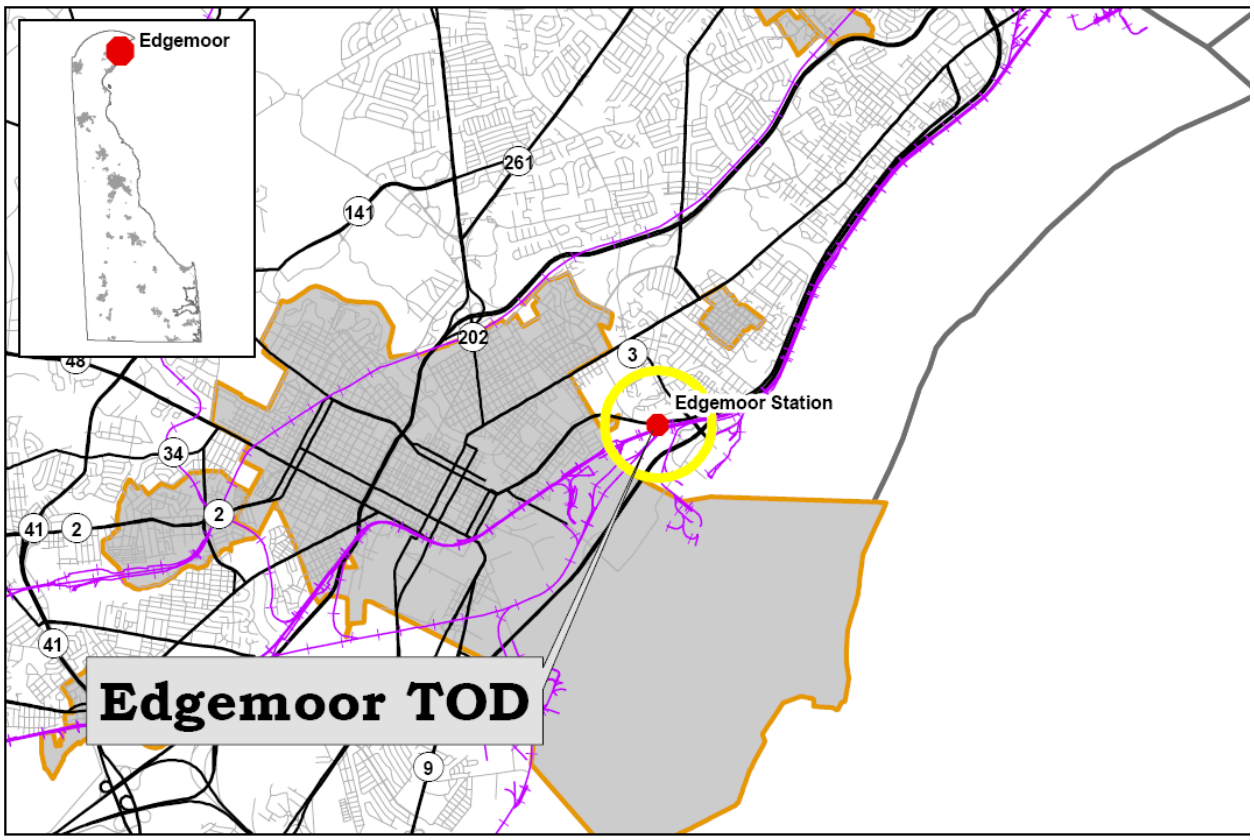
1) *Pedestrian and bicycle connections, as well as enhanced street-grid interconnectivity, are needed to connect the station with adjoining commercial and residential land uses to the west of the station.* Multi-modal paths or new complete streets are needed to enhance interconnectivity. Redevelopment of the station and station area to create place and

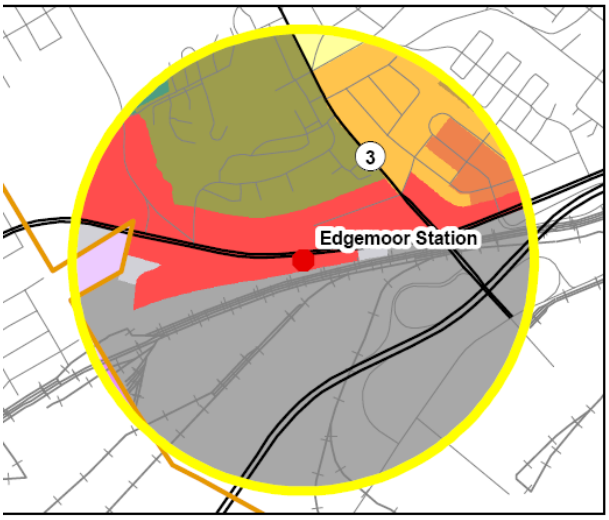
[204] Delaware Department of Transportation, *New Castle County On-Road Bicycle Facilities* Map, (Dover: Delaware Department of Transportation, October 2005), http://www.wilmapco.org/data/demographics/PDF_Maps/DelDOT_NewCastle_RegionalBikeMaps_October2005.pdf.

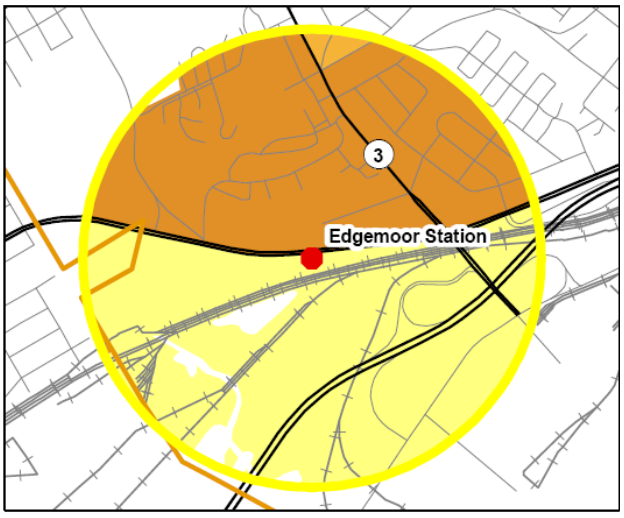
make the Churchman's Crossing station a destination would present an opportunity for further interconnectivity enhancement.

Potential Edgemoor Commuter Rail Station

Total Site Evaluation Score: 4







TOD Stations
City of Wilmington Zoning
Light Manufacturing
General Industrial
New Castle County Zoning
Residential
Suburban Reserve
Suburban
Residential, 5,000 sq. ft.
Residential, 6,500 sq. ft.
Residential, 10,000 sq. ft.
Townhouse
Garden Apartment
Apartment
Suburban Transition
Planned Urban Development
Non-Residential
Commercial Regional
Business Park
Commercial Neighborhood
Industrial
Office Regional
Heavy Industrial

Zoning data courtesy of New Castle County and City of Wilmington.
Population projections from the Delware Population Consortium.

Population density, 2010
(people per square mile)
less than 500
500 - 1000
1000 - 3000
3000 - 5000
5000 - 8000
8000 - 15000
15000 - 30000
greater than 30000

Approximate 2010 population within 1/2 mile of proposed station: 2,285

institute for Public Administration

Existence of a high-capacity/high-volume transit station (rail, bus, BRT, metro, street car, etc.)	**0**

The potential Edgemoor TOD is not currently satisfactory for conversion into a TOD site because the Amtrak and SEPTA rail lines no longer service the area. Throughout the 1960s and 1970s, the station was serviced by SEPTA, but in 1982 service was discontinued for financial reasons.[205] The Rte. 24 DART bus line currently serves Merchant's Square and areas in the station area, stopping about once every 45 minutes. A vacant parking area exists at the Merchant's Square greyfield site.

With regard to future growth potential, the potential Edgemoor TOD site largely depends on the possibility of reinvestment in the Merchant's Square greyfield site. A Food Lion is currently planned for the site, which may stimulate further private sector redevelopment of the area in the near future.

Recommendations Moving Forward

1) *Continue to improve and establish public-private partnerships with key stakeholders.* Re-establishing a train station in Edgemoor will necessitate substantial public support and cooperation.

Adequate Zoning	**3**

The zoning at and around the potential Edgemoor TOD site is not satisfactory for TOD conversion. The land use mix in the area must be enhanced to make the Edgemoor area and specifically, the Merchant's Square center attractive destinations of interest.

Sub-Factors

- *Station-Area Plans/Circulation Plans (0)*

  Currently no station-area plans or circulation plans for the TOD site have been completed.

- *Transit-supportive Zoning (0)*

  The Edgemoor area does not have any transit-supportive zoning districts included in code.

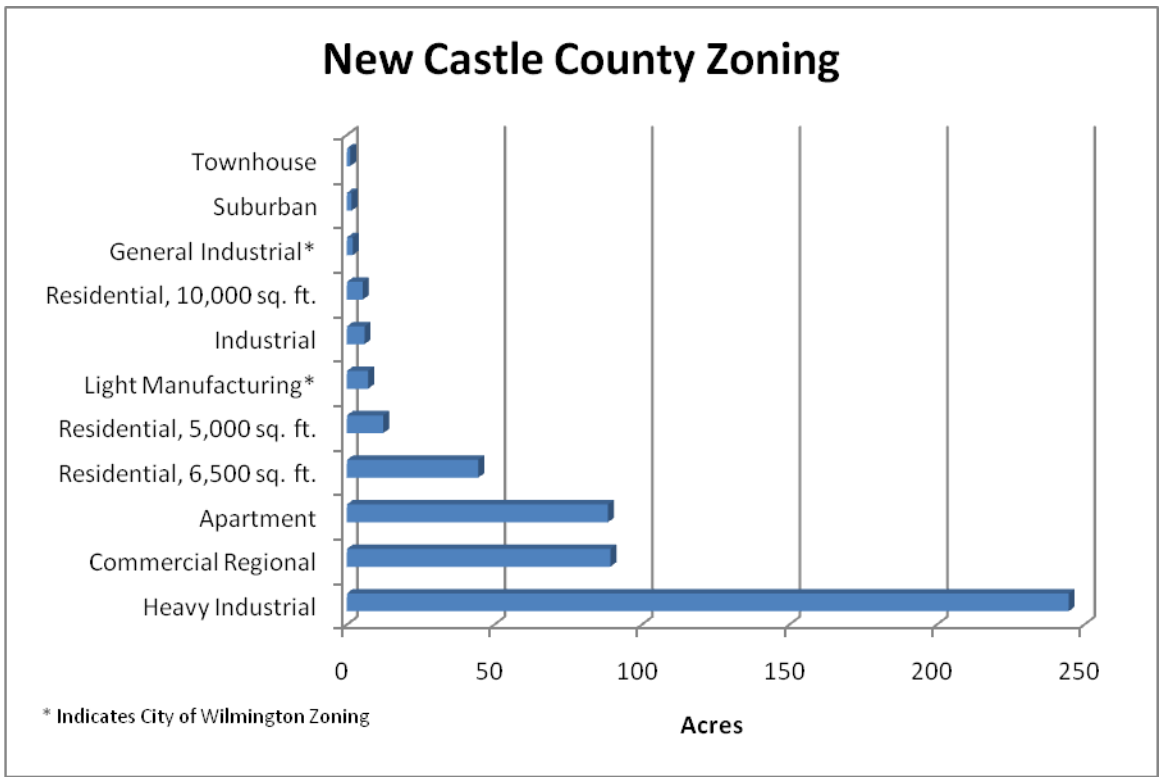
[205] Wilmington Area Planning Council, *Edgemoor, Delaware: Transit-Oriented Development Analysis*, Newark: WILMAPCO, February 2003. http://content.lib.utah.edu/cgi-bin/showfile.exe?CISOROOT=/FHWA&CISOPTR=1414&filename=1415.pdf.

- *Mixed Use (0)*

  The Edgemoor area does not have any mixed-use zoning districts included in code.

  - Quantity/Quality of mixed-use structures: The aerial map below shows differing land uses in the area at and surrounding the TOD site.

The dark blue shape outlining the Edgemoor TOD site is in the center of this aerial image. To the north and northeast are residential areas interconnected by side streets and in some cases sidewalks. The only school in the area is the East Side Charter School located to the west and circled in blue. A few small businesses are also embedded within the station area (they are marked with orange C's). To the southeast are industrial areas. The graph below provides the zoning percentage breakdown for the Edgemoor station area in acreage:



- Vertical/Horizontal mixed use

  The New Castle County zoning code does include provisions for vertical mixed uses within buildings as well as horizontal mixed uses.

- Access to:
  - ✓ Food (grocery store, restaurants, farmer's market): No
  - ✓ Open Space (parks, trails, baseball fields): Yes
  - ✓ Entertainment (museums, malls, movie theatre, arts): No
  - ✓ Health Care (hospital, doctor's office, pharmacy): No
  - ✓ Education (school, university, libraries): Yes
  - ✓ Housing (apartments, assisted living, houses): Yes
  - ✓ Economy (jobs, businesses, industry, office space): No

- *Density (2)*

  Approximate 2010 population within the ½-mile radius of Edgemoor station is 2,285, with the highest density existing north of the station area.

- *Allow use of transfer of development rights (TDR) credits at or near transit facilities as an incentive for transit-oriented design (1)*

New Castle County has a TDR ordinance that provides density bonuses and incentives for development of the Edgemoor site as well as other transit-oriented infill sites in New Castle County. On infill development bonuses, Division 40.07.600-610 of the New Castle County Unified Development Code reads:

> Areas designated by the Department for infill development shall be eligible for a development bonus. The infill development shall be for one (1) of five (5) types:
>
> 11. **Mixed uses development.** Mixed uses sites are zoned CR, ON, OR, BP, or I. The frontage adjoining the site must be in nonresidential use for a total distance of one thousand (1,000) feet including the site.
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>
> 13. **Infill.** These sites are zoned S, ST, or TN. Individual properties shall have a site size able to accommodate twenty-five (25) dwelling units at the open space planned development.
>
> 14. **Transit oriented infill.** The site shall be within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget.
>
> 15. **Employment infill.** The proposed infill project must be a generator of at least four hundred (400) jobs, and shall be located within one thousand (1,000) feet of a transit stop, or have an agreement that a transit stop will be built within one thousand (1,000) feet based on a Delaware Transit Corporation certification that the facility is in the capital budget. Further, the development shall be required to implement a travel demand management program approved by the Department.

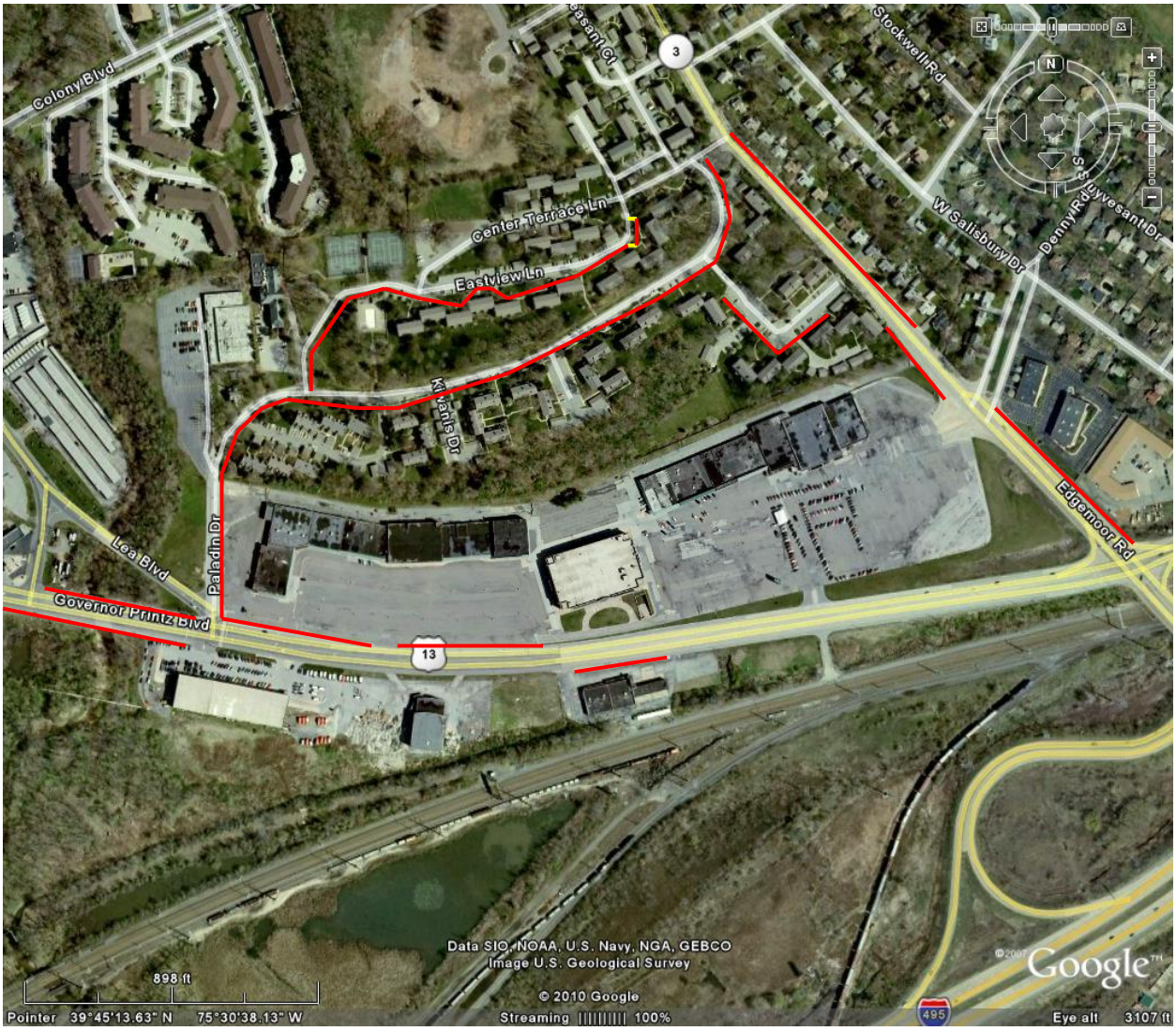
Of particular importance is the fourth type, transit oriented infill, which would apply to the Edgemoor site.

- *Streetscape Design and Pedestrian Accessibility (0)*
  - Street Trees / Tree Medians / Sidewalk Buffers - Minimal

  - Street Grid (discretionary use of Beta Index), Cul-de-sacs – The grid is satisfactory. The northern and northeastern residential areas are well connected. Of greater importance will be how the future redevelopment of the Merchant's Square site integrates with the greater street grid in Edgemoor. The following map shows the potential Edgemoor train station as a red dot in the center of the image. The yellow

circle surrounding the red dot marks a ½-mile radius around the train station. The background lines mark the street grid in the surrounding area adjacent to the station.

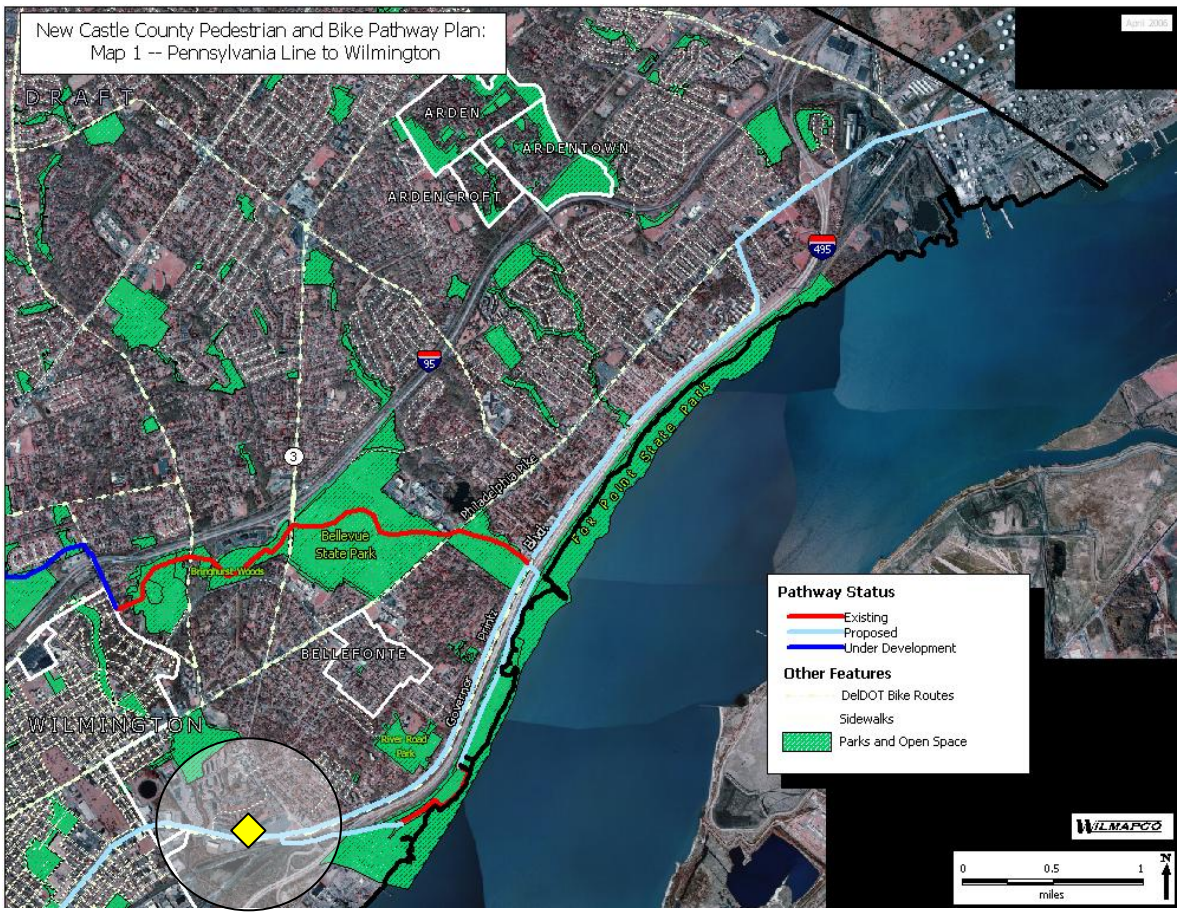
- Traffic-Calming
    - Speed Bumps - None
    - Traffic Circles - None
- Sidewalk Quality – Limited sidewalks are provided on access roads leading to the Merchant's Square location. Sidewalks are highlighted in red below. The sidewalks are generally of satisfactory quality for walking.



Above shows the sidewalk network highlighted in red around the Merchant's Square center. Below shows the network extending west of the Merchant's Square shopping center. Governor Printz Boulevard has sidewalks, and Lea Boulevard doesn't, yet both connect to the Merchant's Square site.

- Street Lights –Adequate lighting is not currently installed on-site. Merchant's Square site redevelopment should take into account the need for well-lit transit facilities.

- Bicycle facilities (lanes, racks, lockers) – The below map shows bicycle lanes in the Edgemoor area. The yellow diamond shows the station location. Currently, only one bike lane is proposed to extend through the Edgemoor area.



206

The Edgemoor site currently has no bicycle lockers or racks on-site.

- Multi-modal paths (does not include sidewalks) – No multi-modal paths are located on-site or in the immediate area.

- *Parking*

  - Minimum vs. maximum parking standards

    The New Castle County code allows for parking-standard reduction or waiver pursuant to defined requirements outlined in the ordinance. This mechanism allows for alternative-parking solutions.

  - Alternative parking

[206] Wilmington Area Planning Council, *New Castle County Pedestrian and Bike Pathway Plan: Map 5 – City of Newark* (Newark: Wilmington Area Planning Council, 2006), http://www.wilmapco.org/nccpathways/images/maps/April06/Map2_Apr06.jpg.

New Castle County government encourages alternative-parking solutions in all site design to alleviate excessive traffic congestion and further parking shortages in the future.

Recommendations Moving Forward

1) *Minimum parking requirements in code should be reviewed for possible modification to allow for greater integration of alternative modes of transportation within requirements.*

2) *Reassess zoning to ensure maximum flexibility for higher density, transit-supportive design, and mixed use.*

Congruence with Regional Land Use Plan	**1**

- Comprehensive Plan

The New Castle County Comprehensive Plan outlines the county's vision for the Edgemoor TOD site moving forward. This vision is in support of high-density, community redevelopment that is necessary for successful TOD. The actual potential station location is in a county-defined Community Redevelopment Area, and other sections of the station area are located in high-density areas (9+ dwelling units/acre).[207]

- Long-Range Transportation Plan (WILMAPCO, DelDOT, DTC)

The Edgemoor station area is located within a priority pedestrian area, as defined in the Regional Transportation Plan produced by the Wilmington Area Planning Council.[208] This means that the greater Edgemoor community is seen as a vital area for pedestrian facility enhancement, which supports Edgemoor TOD enhancement as well since walkability is such a vital part of TOD success.

- Local-Area Plan

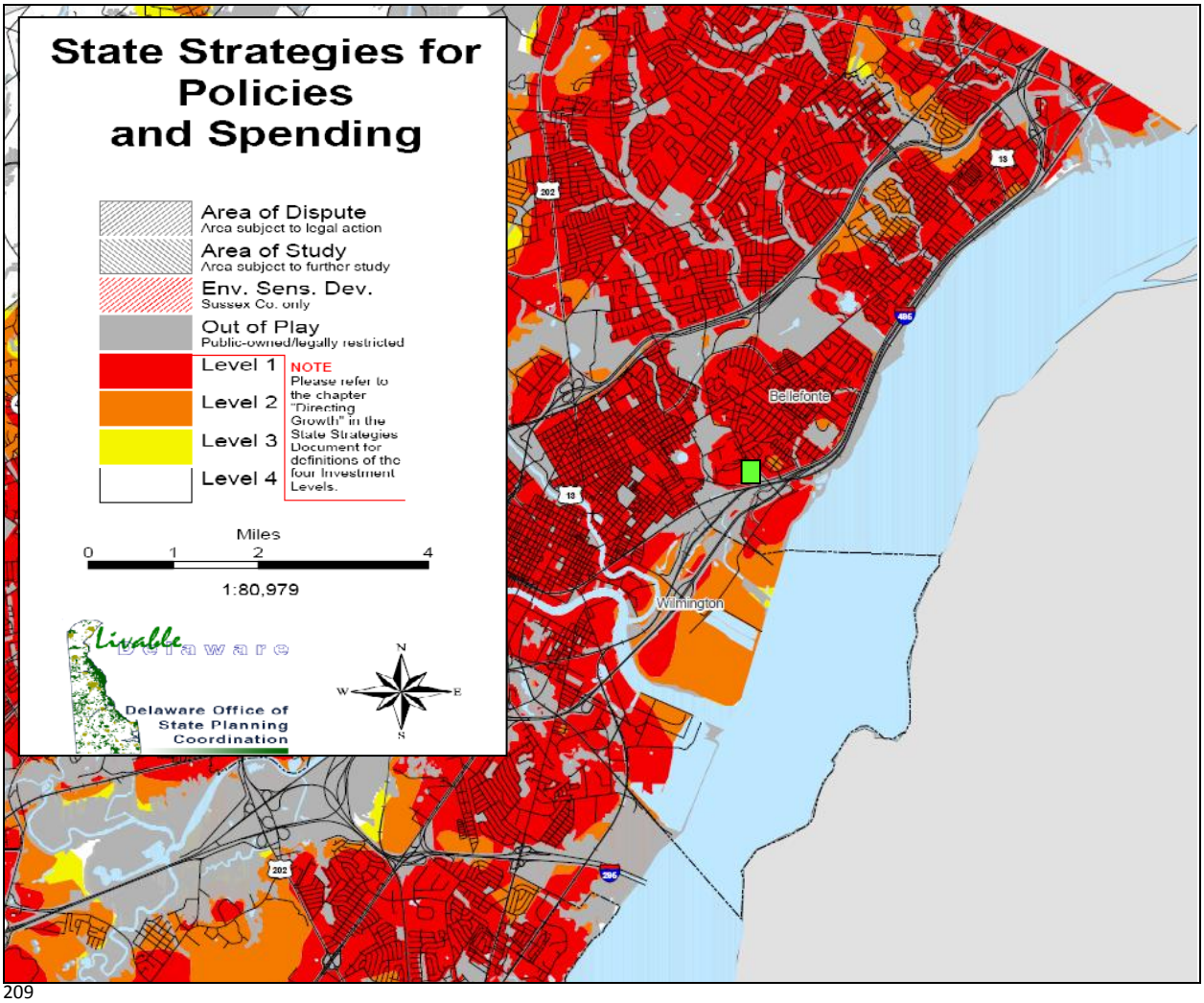
The potential Edgemoor station and TOD site currently are not located in any local-area planning area as defined by the New Castle County Major Sub Regional Studies map.

- Strategies for State Policies and Spending

[207] New Castle County Government, *New Castle County Comprehensive Plan*, [2007], http://www2.nccde.org/landuse/documents/PlanningComprehensivePlanDocuments/FutureLandUsePlanMapII-2.pdf

[208] WILMAPCO, *Regional Transportation Plan: 2030 Update* (March 22, 2007), http://www.WILMAPCO.org/RTP/Final%202030%20RTP/2030_RTP_APPROVED_MARCH_2007_web.pdf, 41.

The potential Edgemoor TOD site is located in a Level 1—priority area as defined by Delaware's *State Strategies for Policies and Spending*. As a Level 1—priority area, the station and surrounding TOD site will top the list for infrastructure investment. Level 1 areas are designated as growth and development zones, considered by public officials to be the urbanized or urbanizing areas of the state.



209

- Intergovernmental Coordination

Intergovernmental coordination is occurring at many levels. The Delaware Economic Development Office has made the Merchant's Square site a priority site for redevelopment and

[209] Office of State Planning Coordination. *Delaware Strategies for State Policies and Spending: 5 Year* Update, (Dover: Office of State Planning Coordination, July 2004), http://stateplanning.delaware.gov/strategies/maps_04/ncco_ansi_d.pdf.

economic revitalization for years working closely with local business people to develop plans and strategies to bring new business into Edgemoor.[210]

Recommendations Moving Forward

1) *Intergovernmental coordination must continue to mature and expand* as planning at the Edgemoor site moves forward.

2) *Future Comprehensive Plans, Transportation Plans, Local-Area Plans, and other documents should incorporate more TOD language specific to the Edgemoor site* to delineate it as a priority area in the state of Delaware. Station-area plans, transit-supportive zoning, fast-track approval processes, and model mixed-use zoning ordinances should be incorporated into plans at all levels to truly make TOD a primary piece of land use and transportation policy in Delaware.

Public Support	**0**

Public support for an Edgemoor TOD cannot currently be assessed, given the fact that no real TOD proposal is on the table for public assessment.

Recommendations Moving Forward

1) *Use community planning tools such as design charettes* to engage the public throughout the Edgemoor TOD—planning process.

2) *Educate the public on the front end* about the utility of higher density and mixed uses, not during or in the later stages of the project.

3) *Use technology effectively to engage the public.* Facebook, Twitter, Skype, touch-screen tables, GoogleSketch, and many other programs can be used to connect people in the community with the planning process.

Public-Private Partnerships	**0**

Substantial public-private partnerships should be established to redevelop the Merchant's Square center.

[210] Wilmington Area Planning Council, *Edgemoor, Delaware: Transit-Oriented Development Analysis*, Newark: WILMAPCO, February 2003. http://content.lib.utah.edu/cgi-bin/showfile.exe?CISOROOT=/FHWA&CISOPTR=1414&filename=1415.pdf.

Recommendations Moving Forward

1) *Address commuter rail vs. freight rail conflicts in the Edgemoor area with Norfolk Southern* so that Norfolk Southern operations are not negatively impacted and so that Edgemoor commuter-rail can accommodate Chrysler site redevelopment and TOD at the Edgemoor train station.

Fully Integrated Transportation System	**0**

The Edgemoor TOD site is not fully integrated into the multi-modal transportation system in the area. Sidewalks, bike lanes, road networks, bus routes, and of course commuter rail do not connect at the location or in some cases exist.

Recommendations Moving Forward

1) *Redevelopment of the Merchant's Square shopping center should include pedestrian, bicycle, and mass-transit components that create a walkable, downtown, destination in Edgemoor.* Special consideration should be made to connecting the Merchant's Square commercial center to the surrounding residential land uses so that nearby residents can more easily walk or ride a bike to the station area.

SECTION 4: PROJECT WORKSHOP NOTES

The notes below are from the April 22, 2010, TOD workshop held as part of this project scope. Attendees were briefed on this paper through a PowerPoint presentation then given the opportunity to provide feedback and engage in discussion on the research findings and conclusions presented. Below is the list of attendees at the workshop:

Table 13: TOD Project Workshop Attendees – 4/22/10

NAME	TITLE	ORGANIZATION
Cathy Smith	Planning Manager	Del. Transit Corporation
Ralph Reeb	Director of Planning	Del. Department of Transportation
Herb Inden	Principal Planner	Office of State Planning Coordination
Tigist Zegeye	Executive Director	Wilmington Area Planning Council
Dave Gula	Senior Planner	Wilmington Area Planning Council
Juanita Wieczoreck	Executive Director	Dover/Kent County Metropolitan Planning Org.
Sarah Keifer	Director	Kent Department of Planning
Ted Williams	Legislative	American Council of Engineering Companies, Del.
Peter Besecker	Director	City of Wilmington, Planning Department
Ann Marie Townsend	Director	City of Dover, Planning & Inspections
Roy Lopata	Director	City of Newark, Planning & Development
Terry Reilly	Executive Director	Transportation Management Association
Pamela J. Scott	Partner	Saul Ewing LLP
Drew Knab	Assistant Director of Planning	U. of Del., Facilities, Planning, & Construction
Ed O'Donnell	Policy Scientist	U. of Del., Institute for Public Administration
Ted Patterson	Graduate Research Assistant	U. of Del., Institute for Public Administration
Martin Wollaston	Policy Scientist	U. of Del., Institute for Public Administration
Jerome Lewis	Director	U. of Del., Institute for Public Administration
Marcia Scott	Policy Scientist	U. of Del., Institute for Public Administration
Owen Robatino	Transportation Planner	New Castle County

Below are the notes from the workshop:

Transit-Oriented Development (TOD): Identification of Optimal Characteristics in Delaware

Workshop Notes from 4-22-10 Meeting

GENERAL COMMENTS

- Attendees mentioned the need for a set of Delaware state TOD strategies. Maryland's TOD strategies were suggested as a frame of reference for Delaware.

- The WILMAPCO Elkton, Md., TOD Plan was referenced as another strong template for local station area planning in Delaware.

- Question posed: What is the ideal number and mix of TOD projects in Delaware? How many stations? What is the limit? What is the spacing? What is the timing? What about other countries? How do they space TODs? What is the phasing of TOD? What is the correct mix of essential goods/services/commercial needed to place a TOD?

- Parking policy and pricing was identified as crucial to TOD and needs further investigation.

- TOD potential exists in Middletown and Newport pertaining to transit-ready development (TRD) and bus/train TOD. Public officials can prepare for TOD through implementing TRD.

- Participants agreed that there is a lack of money and resources for TOD in Delaware.

- Station area planning could be further defined and prioritized to outline a real plan for TOD implementation in Delaware.

- Local connectors/shuttles can be better utilized to enhance downtown mobility in places like Dover.

- TOD Hurdle: Difficult for the private sector to get lending for mixed-use developments.

- Government could be more flexible and cooperative with the private sector. The economic benefits of TOD need to be made more available to the public and business community. One-on-one conversations with private sector actors would be advisable to explore hurdles and opportunities related to TOD implementation.

- Retail component of the land use mix in a TOD is vitally important in creating place.

- Elected Officials/Homebuilders/Developers need to be included in TOD policy discussion.

- Educational Enhancement: Youth need to be educated in school on how to use transit.

- DelDOT LOS standards should be enhanced. DelDOT has recently implemented provisions that make the LOS requirements more lenient for TOD projects.

- A follow-up Pedestrian-Oriented Development (POD) study for priority sites was mentioned.

- Ordinance changes such as overlay zoning and building code designs flexibility can be implemented to enhance the incentives available for TOD projects.

- Create a private sector working group on TOD design with local and out-of-state stakeholders who have had success with TOD projects. (Focus Topics: architecture, code, and finance)

- Maintenance of TOD: who does it? Private Sector? Government? Residents?

Priority Sites for Delaware

WILMINGTON TRAIN STATION

- A new transit hub is planned for Wilmington on Orange St. at the site of an old parking garage—this could be another potential TOD site.

NEWARK TRAIN STATION

- It was noted that University of Delaware property is exempt from regular zoning restrictions and requirements.

- Demolition at the Chrysler site in preparation for major redevelopment is either underway or within days of being underway.

- There is no public support for moving the current Newark train station, but public support is strong for redevelopment and enhancement of the current station.

DOVER DART BUS HUB

- The Wilmington-Dover rail potential and the Eden Hill development were mentioned as key to downtown Dover TOD.

- The Dover DART Bus Hub is being relocated to be closer to the train tracks extending through Dover. The Downtown Dover Partnership will in cooperation with the Kent County/Dover MPO facilitate a community-led charette process for planning the Dover TOD.

Other Sites Under Consideration

CLAYMONT TRAIN STATION

- The walk from the Claymont Station to Darley Green is at an incline and therefore more difficult for pedestrians, whereas the walk down to the station from Darley Green is much more manageable.

- The pedestrian overpass needs general enhancement (paint, lights, etc).

- A local shuttle will be needed between the train station and Darley Green.

- Issue of height restrictions: Archmere Academy viewshed is an obstacle to high-density, vertical development near the train station.

- Long-term station site relocation could be possible to the east of the current station near the steel plant, but nearby coastal environmental resources could serve as obstacles to relocation.

CHURCHMAN'S CROSSING TRAIN STATION

- Road enhancements to be completed in the near future will improve bicycle, pedestrian, and safety facilities in the station area.

- Question posed: should we, at some point in the future, limit access to the train station to only buses, emergency services, not general motorized transportation?

- Delaware Park is the major private-sector player in any Churchman's Crossing TOD.

POTENTIAL EDGEMOOR COMMUTER RAIL STATION

- A Food Lion is being constructed at the Edgemoor site.

- SEPTA is not interested in new Delaware station at Edgemoor.

APPENDICES

Appendix 1: Five Success Strategies for TOD Implementation, Northern Illinois Regional Transportation Authority

Creating a Vision

Local Governments

- Conduct design charettes, visual preference surveys.
- Develop station area plans, circulation plans and zoning-or plan-approval requirements that include transit-oriented objectives and transit-oriented design principles.
- Establish committees or commissions drawing from a variety of perspectives, business, civic leaders, community organizations, etc. to identify assets, goals and objectives for transit-oriented development in the community and to target specific areas in the community.
- Include a transportation component in the comprehensive and economic development plans.

Development Community

- Participate in and support community involvement activities such as design charettes and visual preference surveys; encourage and support early public participation.
- Participate in efforts to adopt transit-oriented development policies and regulations.
- Incorporate transit-oriented design principles, policies and regulations into development proposals and advocate for those ideas with municipal officials.

RTA

- Develop programs/hold workshops on transit-oriented design for municipalities and the development community.

Educate, Advocate, Facilitate

Local Governments

- Identify the advantages and disadvantages of transit-oriented development for your community.

- Advocate and educate elected officials and community organizations about the benefits of transit-oriented development.
- Identify benefits for residents and the business and development communities from transit-oriented development such as improved mobility, increased tax base, reduced congestion.
- Develop a public participation program that includes a cross-section of community representatives to develop goals and objectives for areas around transit facilities.

Development Community

- Advocate and educate for transit-oriented development.

- Identify benefits for communities of transit-oriented development, such as reduced need for roads and parking, community image and enhanced property values, etc.

- Provide pro-bono support to workshops, design charettes and other public participation efforts that establish goals and objectives for transit-oriented development in a community.

- Identify benefits of transit-oriented development for potential buyers or lessors of the project such as resale value, higher levels of foot traffic for commercial property, etc.

RTA

- Educate and advocate for transit-oriented development among mayors, managers, administrators, planners, the development community and citizens.

- Develop programs/hold workshops on transit-oriented design for municipalities and the development community.

- Work with local planners and officials to solicit support for adopting transit-oriented development policies and ordinances.

Create Partnerships

Local Governments

- Adopt transit-oriented development policies and regulations.

- Provide incentives in appropriate areas for transit-oriented development.

- Acquire land for parking lots, parks, plazas or other amenities at or near transit facilities.

- Use the transfer of development credits or rights to areas near transit facilities as an incentive for application of transit-oriented design in those areas.

- Include representatives from a cross-section of the community in development of programs, plans and design charettes.

- Ensure that projects are coordinated with transportation agencies and adjacent communities.

Development Community

- Participate in efforts to adopt transit-oriented development policies and regulations.

- Incorporate transit-oriented design principles, policies, and regulations into development proposals and work with municipalities advocating those principles.

- Capitalize on transit-oriented development incentives where possible.

- Seek opportunities to enter into joint development agreements to fund new stations, connections between transit facilities and adjacent development, park-and-ride lots or infrastructure improvements in association with your project.

- Coordinate with other municipalities, transportation agencies and other public works projects to identify points to enhance pedestrian connections and scheduling of service.

Remove Obstacles

Local Governments

- Review local development standards, zoning ordinances for compatibility with transit-oriented development.

- Changing restrictive zoning, eliminating parking minimums, etc. where possible.

- Work with NIPC to support overlay ordinance efforts.

- Develop station-area plans, circulation plans and zoning or plan approval requirements that include transit-oriented objectives and transit-oriented design principles.

Development Community

- Participate in efforts to adopt transit-oriented development policies and regulations.

- Incorporate transit-oriented design principles, policies and regulations into development proposals.

- Be prepared to explain and demonstrate the benefits of transit-oriented development projects to local officials and community organizations.

RTA

- Develop a "clearinghouse" process for review of transit projects to ensure effective communication and coordination among municipalities, transportation departments and agencies, other infrastructure projects, affected local governments, public interest groups and developers.

- Support the NIPC overlay ordinance efforts.

Create Opportunities

Local Governments

- Acquire property in areas identified for re-development to remove deteriorated buildings and to assemble parcels for development.

- Establish special-service districts in areas around transit facilities to install and maintain improvements, provide matching funds for landlord improvements to buildings, for maintenance of streets, parking lots, and sidewalks or to promote the district.

- Create TIF to fund infrastructure improvements in areas around transit facilities.

- Enter into joint development agreements to fund new stations, direct connections between transit facilities and adjacent development, park-and-ride lots, or infrastructure improvements.

Development Community

- Look for opportunities to use the transfer-of-development credits or rights to areas near transit facilities as a means to support transit-oriented design.

- Enter into joint development agreements to fund new stations, direct connections between transit facilities and adjacent development, park-and-ride lots, or infrastructure improvements.

RTA

- Develop a strategy for transit-oriented development. Identify target areas for transit supportive development.

- Work with planners, local officials in municipalities with existing transit facilities to support application of transit-oriented design.

- Encourage adoption of public policies and regulations that reinforce transit-supportive development patterns.

- Support NIPC efforts for municipalities to adopt the transit overlay zoning ordinance.

Appendix 2: Summary of Key Questions and Recommended Indicators by Stakeholder Group

Stakeholder Group	Key Questions about TOD	Recommended Indicators
State and Regional Government	-What funds are available for TOD planning and implementation? -What state policies are used for TOD planning and implementation? -Is there a forum for various state agencies and regional governments to collaborate with other stakeholders, especially transit agencies and local government for TOD planning and implementation? -What policies and programs exist that deal with related issues, such as growth management, traffic, management, housing and environmental stewardship, and how can these be integrated with TOD planning and implementation?	-Existence of a state/regional forum on TOD coordination -Number of TODs that receive planning support under a state/regional forum -Amount of funding that comes from state and regional governments for TOD -Number, content, and quality of state and regional policies that facilitate TOD -Percent of regional growth (housing, economic, and land consumption) occurring in transit precincts and TODs versus non-TOD areas -Regional housing demand estimates for TODs -Vehicle miles travelled in TODs versus non-TOD areas -Existence of a TOD monitoring program
Transit Agencies	-How much does TOD lead to increased use of public transport? -How can transit agencies balance short-term parking demands with the long-term nature of developing TODs?	-Mode share and transit ridership -Parking utilization -Non-fare box revenues from land

	-How can transit agencies capture value (or share costs) around and above their stations with the private sector?	
Local Government and Communities	Economic	
	-How much and what type of jobs are created? -How vibrant is the district? -Are households able to significantly reduce transport expenditures? -How much property taxes are generated?	-Number of jobs by type -Vacancy rate -Household housing and transport expenditures -Property value and taxes collected
	Environmental	
	-Do TODs preserve open space and/or reduce sprawl? -Do TODs reduce greenhouse gases? -Do TODs reduce energy consumption? -Do TODs reduce automobile dependence and traffic congestion?	-Population density -Energy consumption -Carbon dioxide emissions -Resident commuting time -Vehicle miles/kilometers traveled
	Social	
	-How will TODs impact quality of life? -How will benefits be distributed across society? -Will the development be attractive?	-Quality of Life perceptions -Quality of public realm perceptions -Education and income distribution
Private Developers	-How long is the approval process? -What are the major risks? -What public sector incentives are available? -Will the market support the proposed development plan?	-Housing Affordability -Length of Approval Process -Amount of subsidies -Internal Rate of Return on Investment

(Curtis, Carey, John L. Renne, and Luca Bertolini, ed. *Transit-Oriented Development: Making It Happen*. Burlington: Ashgate Publishing, 2009, 254.)

Appendix 3: Transit-Friendly Checklist, excerpt from *Planning for Transit-Friendly Land Use: A Handbook for New Jersey Communities*, 1994, New Jersey Transit

The following 21 questions are designed to gauge various attributes that contribute to the success of transit-oriented development.

Existing Institutional Mechanisms

- Are goals and policy statements that encourage transit use or transit-compatible development incorporated in your community's Master Plan or Zoning Ordinance?
- Are incentive mechanisms (i.e., bonuses, parking reduction, and similar measures) offered to encourage transit-compatible development?
- Are any of the following mechanisms that might encourage transit-compatible development or redevelopment included in your municipal land use or zoning ordinance?
    - Special Districts?
    - Overlay Districts?
    - Planned Unit Development?

Land Use

- Are active pedestrian-generating land uses encouraged to concentrate in activity centers or within walking distance of transit facilities?
- Are a mix of land uses, especially residential, commercial, and retail, encouraged within walking distance of activity centers or transit facilities?
- Are large areas of single-use zones discouraged?
- Are multiple compatible land uses permitted within buildings near transit operations?
- Are convenience retail and service uses encouraged on the lower levels of buildings in activity centers or adjacent to transit facilities?

Density

- Are relatively higher densities encouraged in activity centers or near transit facilities, with a gradual decrease in density away from these centers?
- Do the densities mandated near transit facilities, by the various municipal ordinances, support transit use?

Site Planning/Design

- Are continuous sidewalks that radiate from your community's center to outlying districts encouraged?
- Are site designs that encourage buildings to cluster near transit facilities encouraged?
- In non-centers, are site designs that encourage buildings to cluster near transit facilities encouraged?
- In centers, are buildings encouraged to locate at the street line, thus defining and enclosing the primary pedestrian paths?
- Are larger developments or redevelopments encouraged to conform to existing block patterns and provide multiple access points for pedestrians?
- Are subdivisions encouraged to conform to grid or modified grid patterns without cul-de-sacs or dead ends?

Parking

- Are parking requirements reduced or shared parking provided for uses in close proximity to transit?
- Is structured parking encouraged over surface lots in higher-density centers?
- Are surface parking lots encouraged to be located off of main streets and away from front lot lines?
- If high capacity transit systems exist, are large commercial uses encouraged to provide shuttle service when located beyond walking distance from the facility?

Joint Development

- Are key development sites adjacent to a planned or existing transit facility designated for transit compatible uses, densities and designs?[211]

Appendix 4: Community Design Core Values, excerpt from *Better Models for Development in Delaware, March 2004*, Office of State Planning Coordination, State of Delaware, and the Livable Delaware Advisory Council Community Design Subcommittee

Value One: Land Features before Land Design

As a first step, identify and map the property's assets to accomplish the following:

- incorporate or work around important features such as wetlands, steep slopes, established forests, waterways, historic or pre-historic sites
- maximize habitat protection and minimize habitat fragmentation
- give priority to protection of the natural resources before considering the layout of the project
- put development on the least valuable areas rather than the most valuable site elements
- incorporate the site's resources when designating areas for preservation and recreation

Value Two: Land Design before Yield

Instead of focusing on the potential project yield in number of units per acre, let the design flow from the:

- land features
- desired appearance of finished project
- functionality of the built environment
- project's character
- appropriateness of the project's location in regard to neighbors, environment and surroundings

Value Three: Cluster Before Sprawl

[211] Corbett, Judy and Paul Zykofsky, Center for Livable Communities, *Building Livable Communities: A Policymaker's Guide to Transit-Oriented Development*, (Sacramento: Center for Livable Communities/Local Government Commission, August 1996), 60-61.

Look at opportunities to cluster the project's components with:

- priority for smaller lots by reducing larger lots and dispersed uses
- mixed uses
- more compact and efficient land design
- walkability
- connectivity
- seamless transitions between uses rather than abrupt borders

Value Four: Scale Before Statement

- Determine the design and appropriateness of structures based on the general context of the area to:
- promote construction that is sensitive to the scale and context of the surroundings
- rather than building the biggest, most impressive buildings possible; build structures designed to fit a human scale and perspective
- consider the manageability of home sites and proximity of buildings to each other

Value Five: Neighborhood Before Individual Ownership

Pursue designs that accommodate social interaction and incorporate shared access to community resources by:

- considering the connection to adjacent uses—such as shopping, schools and recreation—rather than building individual homes and businesses on isolated sites
- allowing the natural features and benefits of the site—such as water bodies or vistas—to be accessible to the entire community rather than limited to a few areas
- offering opportunities for interaction with others as well as individual areas for fostering pride of ownership and identity

Value Six: Community Inclusion Before Site Exclusion

Design projects that are place sensitive and foster identity by:

- avoiding real or perceived (designed-in) isolation, separation or exclusion such as that found in gated communities or those that focus layout inward and separate from neighborhood or community

- encouraging communication among neighbors through greenways, paths, open space corridors and compactness

Value Seven: Pedestrian Before Vehicle

In the design, take the opportunity to put pedestrians first by:

- promoting walking and biking

- making the automobile secondary in the design process, while recognizing its continuing necessity

- recognizing that roadways can be more than just a means to convey vehicles

- promoting the use of roads as open space and routes for alternative modes of travel

- minimizing excess vehicle travel by making roads friendly to walkers and bikers. This benefit added value of increasing community identity and integrity

Value Eight: Sensibility Before Fad

Seek designs and features appropriate to the local market which reflect the lifestyles of area residents by:

- resisting the architectural fad of the moment when those designs clearly do not fit the community

- designing a mix of types, styles and sizes of residential units

- building active, human-scaled commercial streets rather than huge shopping complexes with expansive parking areas

Value Nine: Context Before Application

Focus on identifying, preserving and creating community character by:

- attention to scale and context-sensitive architecture

- consideration to local vernacular styles rather than blind acceptance of corporate, regional

or national designs

- providing for seamless transitions of uses and activities rather than rigid zoning districts and use requirements

Value Ten: Land Planning and Architectural Design Before Engineering

Stress design flexibility and creativity by:

- avoiding reliance on rigid, engineering-based development parameters (such as those typically found in subdivision ordinances)

- adopting more flexible standards for lot sizes/shapes, setback, floor area ratios, burning radiuses and street widths.

Value Eleven: Community Character Before Ordinance

Tailor land development controls to the community and regional setting by:

- using design to create quality places rather than relying on ordinances and standards to create community

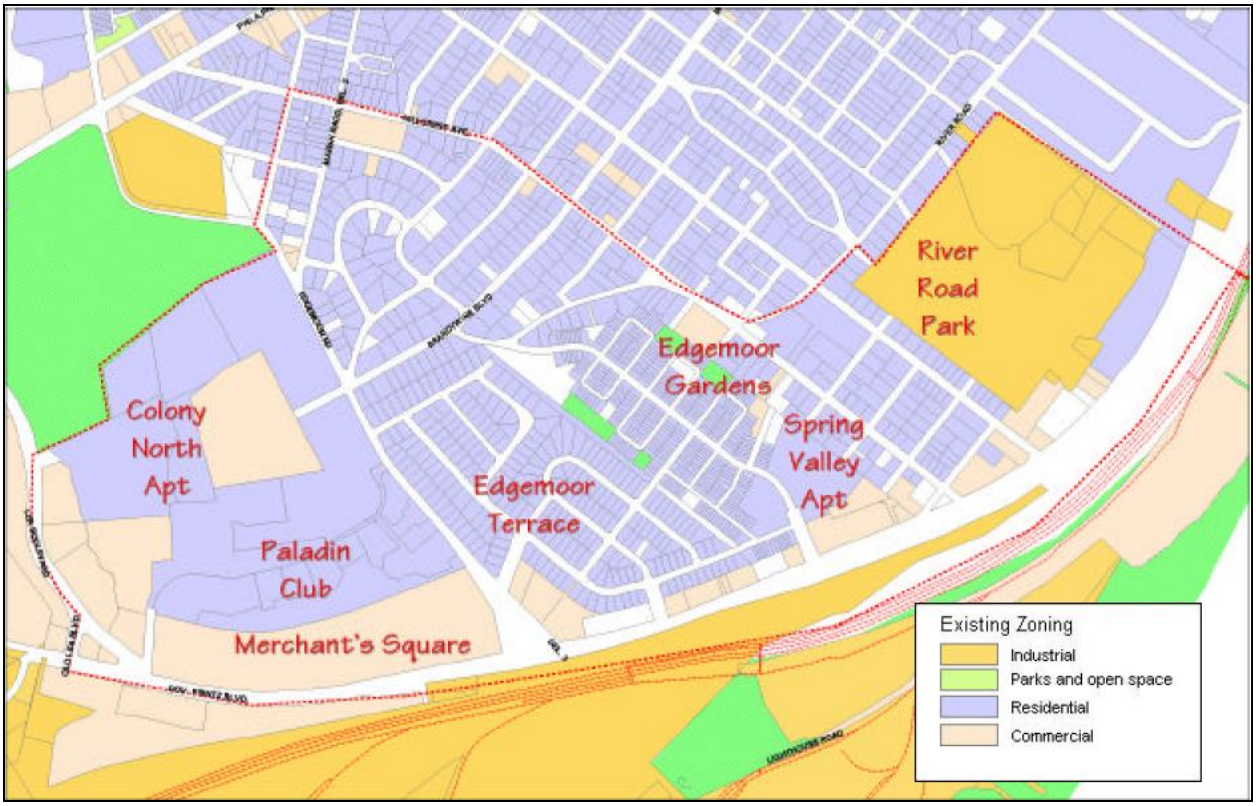
- minimizing rigidity in the regulatory process

- avoiding merely mirroring “common usage” controls and approaches used elsewhere

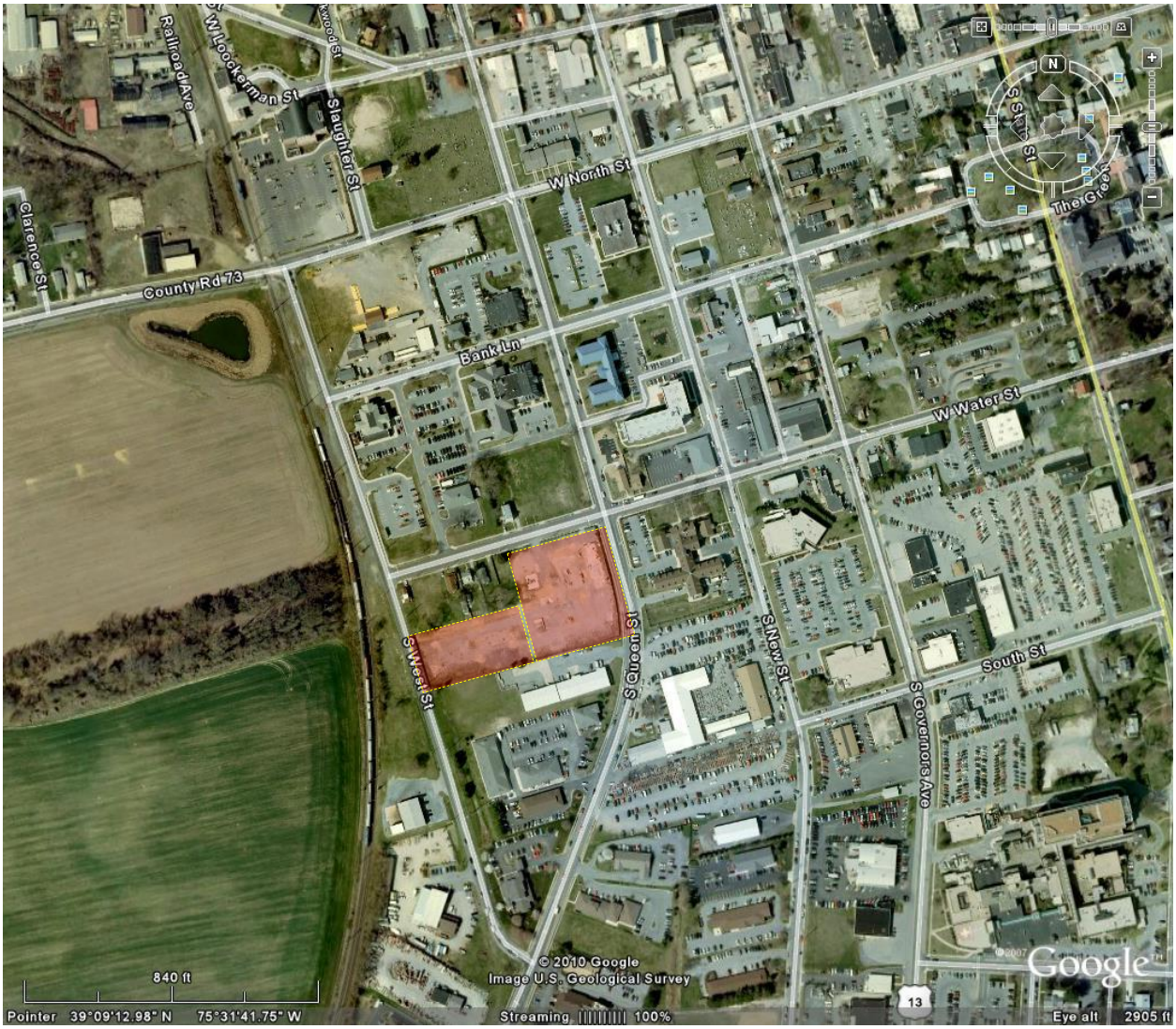
- avoiding approaches that were developed to fit unique circumstances of another jurisdiction

Appendix 5: Delaware Commuter Rail Stations

Appendix 6: Edgemoor TOD Site Area



Appendix 7: Dover Bus Hub



Appendix 8: Wilmington Train Station Restoration and Renovation Details

The Restoration & Renovation of the Historic Wilmington Amtrak Station
May 2009 to February 2011

(Artist rendition of the Wilmington Train Station)

Excerpt from DART website www.dartfirststate.com/press_releases/wilm_train/index.shtml:

With funding provided by the American Recovery and Reinvestment Act (ARRA), the Federal Transit Administration, and the State of Delaware, work has begun on restoring and renovating the Wilmington Train Station, now known as the Amtrak Station. Though this historic facility is over 100 years old, it is a vital and increasingly important part of Delaware and the region's transportation infrastructure. On average, up to 84 Amtrak trains and 35 SEPTA trains serve the station each weekday. It is the 11th busiest station among the more than 500 stations Amtrak serves.

Work includes a detailed restoration and waterproofing of the building's exterior and a complete renovation of the interior of the building. Projects highlights include a new ADA ramp at the corner of Front and French Streets, renovated restrooms, improved HVAC, new elevators and escalators, and a sprinkler system. Work on the platforms and tracks have begun and are expected to be completed in March 2010. The entire project will be completed in February 2011.

As this major restoration and renovation project proceeds there will be times when Amtrak, SEPTA and/or DART services may be disrupted. In order to minimize any inconveniences please be mindful the informational outreach efforts of the three service providers.

January 13, 2010 - The Wilmington Train Station DART Transit Store will close at 6 PM on January 29 due to the opening of the new temporary station on February 1. The DART store will also be relocated to the temporary station and reopen on February 1. SEPTA R2 riders are advised to purchase their passes at other SEPTA ticket locations or on the R2 trains.

January 12, 2010 - The next phase of station construction begins on February 1, 2010. The station will be relocated to a temporary structure located in the Walnut Street Alley. The temporary station main entrance is located at the corner of Front Street and Walnut Street. The temporary station will have all the amenities and services including Coffee Shop, News Stand, Car rentals, Vending, ATM, JR's Shoe Shine, and DART Transit Store.

December 4, 2009 - As of Monday, February 1, 2010, the current entrances to the Wilmington Train Station will no longer be open to the public. On that date a new, temporary main entrance will be opened on the Front Street side of the building toward the east end of the block (Walnut Street). This is being done to allow for the total rebuilding and restoration of the station's Concourse Level interior, a project that will last for close to a year. In lieu of the existing station facilities, a series of modular units have been put in place to provide for service to customers of Amtrak, SEPTA, DART, Budget and Hertz. These new modular systems include ticketing, baggage handling, a coffee shop, restrooms and a spacious waiting room.

November 30, 2009 - A new ramp has been opened at the Wilmington Train Station to accommodate persons with disabilities. The ramp is located on the Front Street side of the building toward the east end of the block, adjacent to the steps that will serve as the station main entrance while construction continues. There are a number of large signs directing persons with disabilities to the ramp location.

October 2, 2009 - Continued construction at the Wilmington Train Station will take track #2 out of service on October 12th at 11 pm until November 20th at 5 am. SEPTA southbound train #7207 arriving in Wilmington at 7:25 AM will leave Wilmington 9 minutes earlier, at 7:26 AM, instead of 7:35 AM. The train will depart Churchman's Crossing at 7:36 AM, instead of 7:45 AM and arrive in Newark at 7:44 AM.

September 28, 2009 - The DART bus stop at Wilmington's Amtrak Station is relocated due to construction on the station building. The DART bus stop is moved back one block to M.L. King & French Streets.

July 23, 2009 - During the next 6 months, SEPTA R2 riders can expect brief delays as trains will be assigned to different tracks at slightly different times. No trains will depart prior to their scheduled departure. Please listen to station announcements or consult the Solari board in the main concourse.

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Delaware Center for Transportation University of Delaware Newark, Delaware 19716

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