Appendix F. Transit-Oriented Development
(Part 2 of 2)

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MUNSTER RIDGE ROAD

TOD VISION PLAN

The TOD vision plan for the Munster Ridge Road station area includes a variety of land uses with higher density, pedestrian-friendly infrastructure, pocket parks, and enhanced open spaces.

Unlike today's conditions at many existing commercial centers along Ridge Road, parking would be located behind visible street frontages to create a more appealing pedestrian environment.

Taking advantage of the intersection's high visibility, Ridge Road and Manor Avenue are envisioned to transform into a vibrant mixed-use node with a variety of multi-family developments, commercial retail, and services.

The TOD vision plan also incorporates connections to the widely used Monon Trail in order to leverage this valuable regional transportation alternative.

Figure 20 illustrates the TOD vision plan for the Munster Ridge Road station area.

Townhomes

Mixed-use building with residential on upper floors

Restaurant with outdoor seating

Figure 20. TOD vision plan for the Munster Ridge Road station area

Source: Farr Associates, 2017

PROGRAM SUMMARY

Mixed-Use	92,000 sf
Restaurant	6,500 sf
Townhomes	22 units

Parking is accommodated on-site at a ratio of 1.0 - 1.5 parking spaces per unit.

STREET SECTION DETAILS

Manor Avenue

Manor Avenue is a north-south minor collector street approximately 28 feet wide and unstriped. Parking is currently prohibited at all times along the east side of the street. The future Manor Avenue will allow passenger loading within a lane along the east side of the street, closest to the tracks; the two travel lanes (each 10 feet wide) will be restriped further west within the existing street section *(see Figure 21).* Select sections of the street could be widened into the parkway to accommodate a parking lane on portions of the west side of the street.

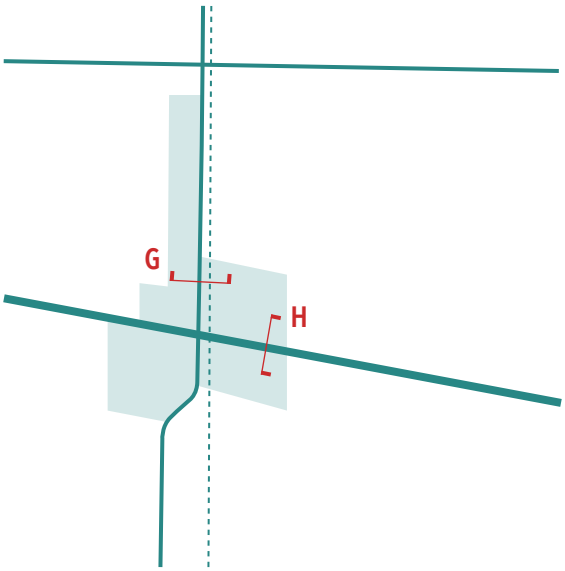
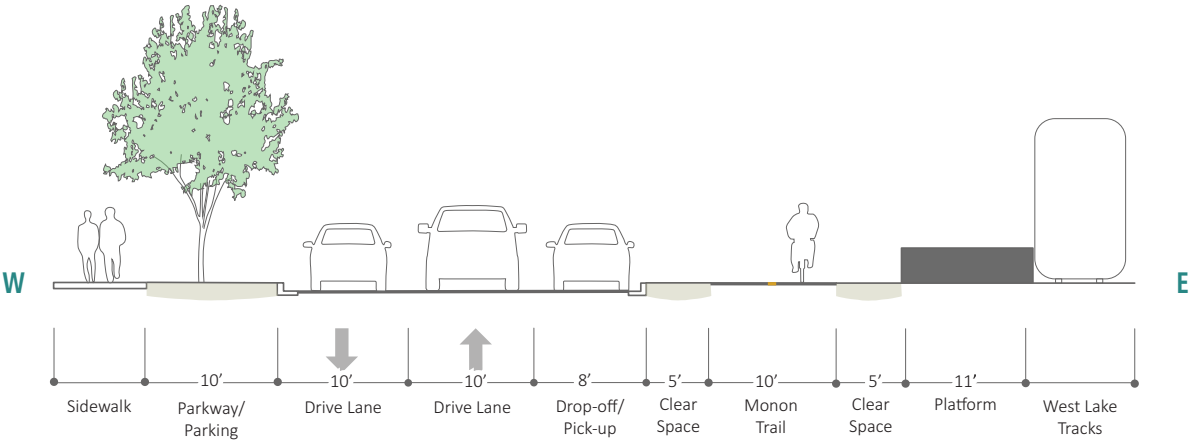


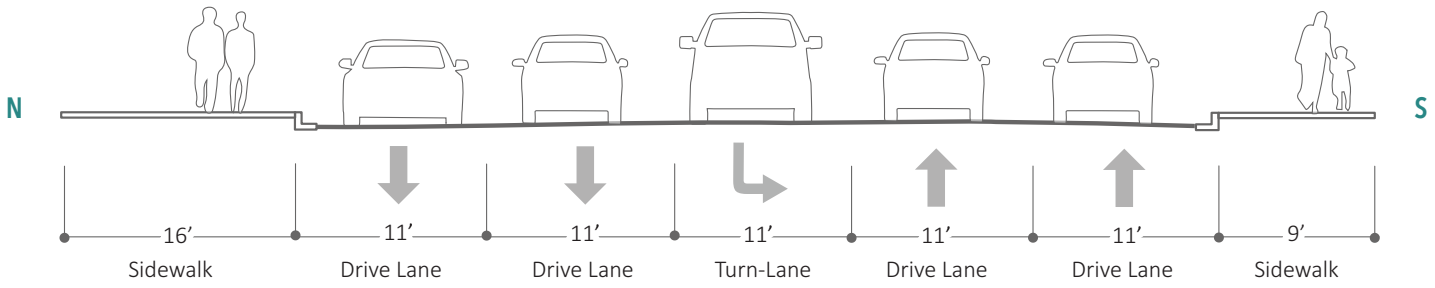
Figure 21: SECTION G - MANOR AVENUE



Ridge Road

Ridge Road is a minor arterial street that carries approximately 21,500 vehicles per day. It currently provides 11-foot travel lanes and a center two-way turn lane, with parking prohibited at all times. With the development of the station area, Ridge Road is shown maintaining that existing five-lane section; however, there is an opportunity to widen the sidewalk on the north side of the street to match the width of Ridge Road currently found to the east toward Harrison Avenue *(see Figure 22).*

Figure 22: SECTION H - RIDGE ROAD



MUNSTER / DYER MAIN STREET

TOD VISION PLAN

The TOD vision plan for the Munster / Dyer Main Street station area features growth of a new neighborhood with townhomes, multi-family housing, and neighborhood services. The TOD vision plan also incorporates complementary multi-modal connections, parks and plazas, as well as new streets that will connect to Columbia/ Sheffield Avenue, creating better circulation to ensure efficient multi-modal movement around the station and to future neighborhoods.

Two neighborhood parks anchor the residential development on both sides of the West Lake tracks. The western park is shown framed by a range of townhomes and multistory residential buildings. Amenities such as a small gym or service uses are envisioned in the 'L' shaped buildings, and pictured in photo 'D.' The eastern park is shown programmed with two tennis courts, a small 'tot lot' for children, as well as landscaped, passive space.

Figure 23 illustrates the TOD vision plan for the Munster / Dyer Main Street station area.

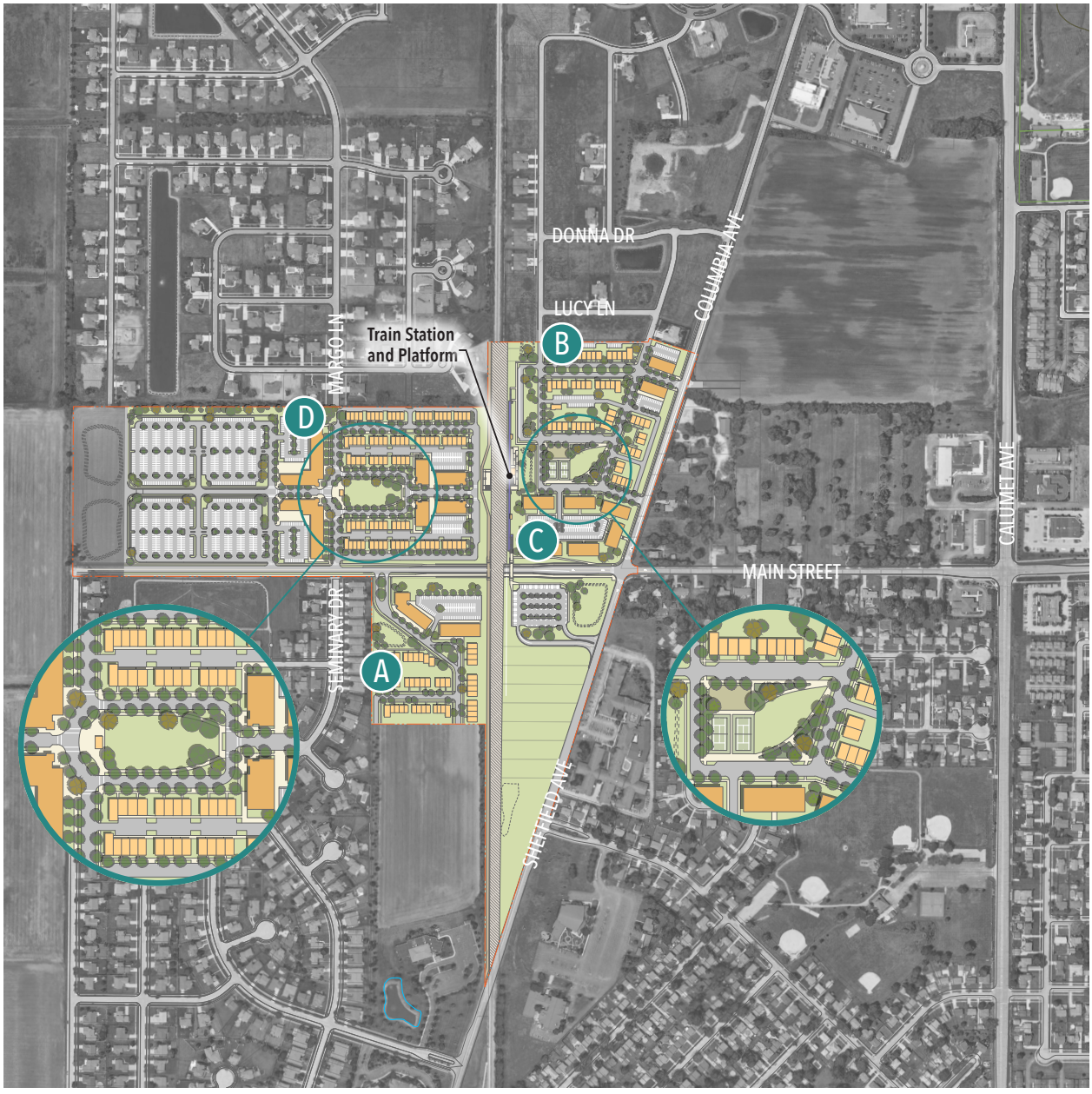
Townhomes

Townhomes

Multi-unit apartment/condominium building

Multi-unit apartment/condominium building

Figure 23. TOD vision plan for the Munster / Dyer Main Street station area



Source: Farr Associates, 2017

PROGRAM SUMMARY

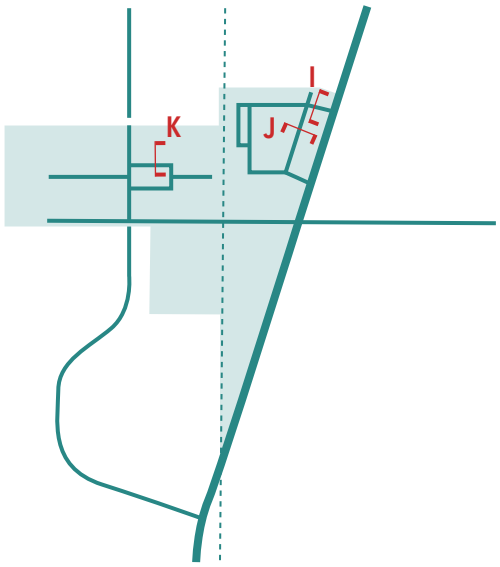
Apartments	558 units
Townhomes	199 units
Commercial	10,000 sf
Park / Open Space	2.0 acres

Parking is accommodated on-site at a ratio of 1.0 - 1.5 parking spaces per unit.

STREET SECTION DETAILS

Entry Boulevard

The entry boulevard is shown as a typical collector street section with a single travel lane in each direction and parking on both sides of the street *(see Figure 24)*. The parking lanes could be framed by curb bulb outs at the intersections to minimize the pedestrian crossing distances; alternatively, parking could be omitted if a left-turn lane is required. Sidewalks should be separated from the street with six to eight feet of parkway.



New Residential Street

The new residential streets should be at most 30 feet wide curb-to-curb to keep speeds low and reduce pedestrian crossing distances *(see Figure 25)*. This street section can accommodate a single travel lane in each direction and parking on one side of the street. Often, parking can even be accommodated on both sides of the street within the 30-foot width, when traffic volumes and parking demand is low. Sidewalks should be provided with a minimum five-foot parkway separation from the street.

New (Parkside) Residential Street

This residential street is a variation of the previous street section with a maximum curb-to-curb width of 30 feet to keep speeds low and reduce pedestrian crossing distances. This particular section is shown parkside so sidewalk is located immediately adjacent to the street to maximize continuous open space *(see Figure 26)*.

Figure 24: SECTION I - ENTRY BOULEVARD

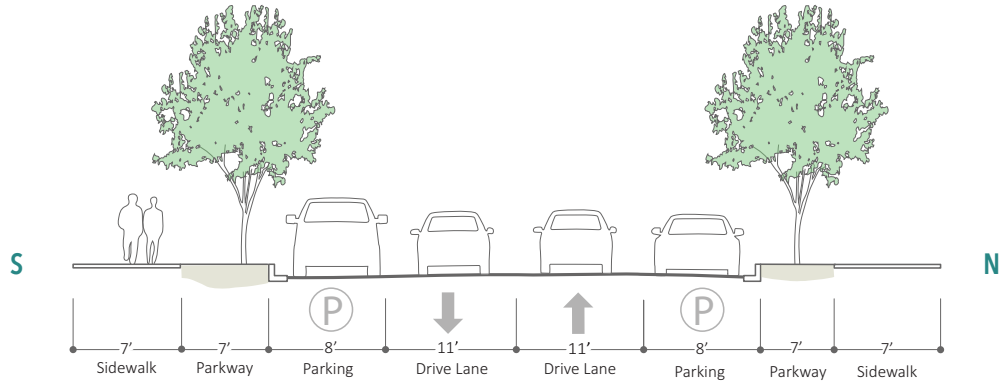


Figure 25: SECTION J - NEW RESIDENTIAL STREET

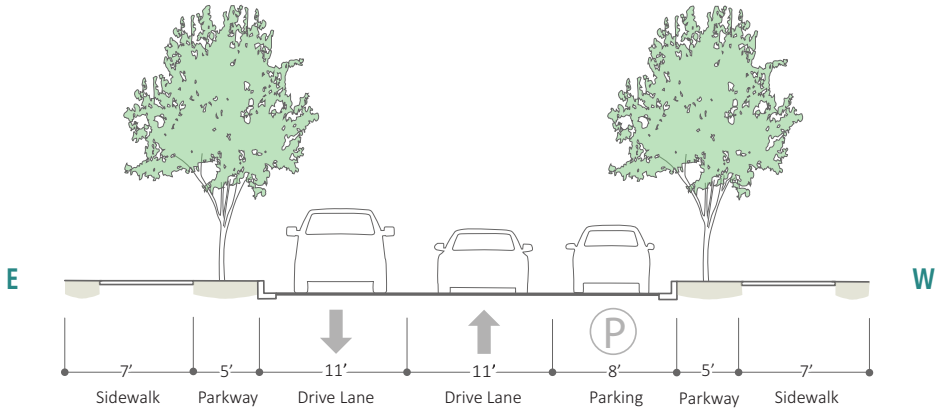
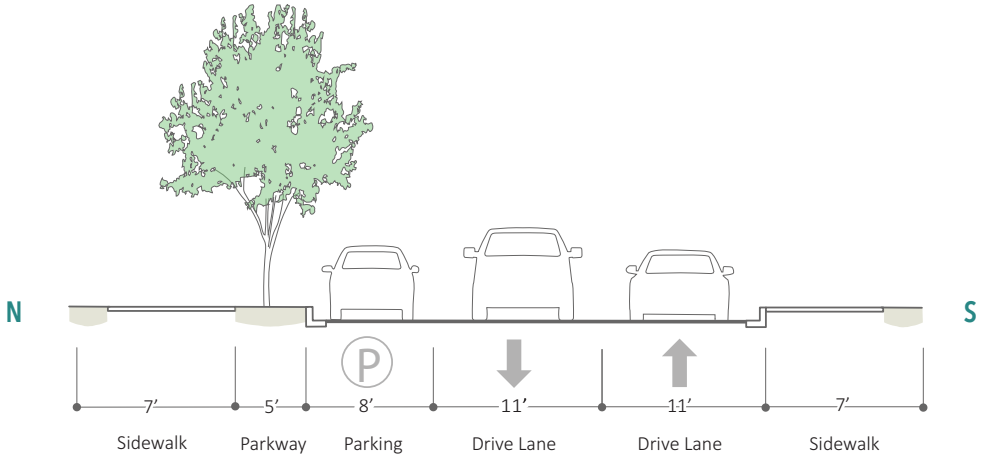


Figure 26: SECTION K - NEW (PARKSIDE) RESIDENTIAL STREET



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MOBILITY

MOBILITY OVERVIEW

As fundamental concepts of TOD, transportation and land use should be intrinsically linked. TOD is typically defined as compact, higher-density, mixed-use development in proximity of a transit station. Within a TOD, a resident has the ability to walk, bike or take transit to work, and meet a combination of convenience and lifestyle needs within a short walk of home – making the walkability of the neighborhood essential to its success. Notwithstanding, the stations will draw vehicular traffic as people park and ride. This section looks at mobility, or how people travel to, from, and around the station areas, including walking, biking, driving, and shared mobility.

STREET FRAMEWORK

The street framework for each station area plan aims to provide as complete of a grid network as possible, with sidewalks on both sides of every street. A complete street grid provides a connected and predictable pedestrian network and helps to evenly distribute traffic volumes. The West Lake TOD station area plans include new streets to connect to the existing street network in adjacent neighborhoods, and blocks at intervals complementing the pattern of surrounding development, in short, walkable intervals.

MONON TRAIL

The Monon Trail is a statewide recreational trail that has an approximately four-mile long portion between the Pennsy Greenway in Munster and the Erie Lackawanna Trailhead in downtown Hammond. It currently extends through the South Hammond and Munster Ridge Road station areas, and its extension should be considered as part of this plan southward to the Munster / Dyer Main Street station and beyond to the Dyer Amtrak station. Having this regional trail extend along the West Lake Corridor and connect seamlessly to the stations and station areas is a tremendous asset to commuters, residents, and businesses.

The Monon Trail

The Monon Trail

CRASH ANALYSIS

Safety is also a key component to a walkable area, so a crash analysis was conducted to determine mobility improvements necessary at each station area. A crash prediction website produced by Indiana State Police and the Management and Performance Hub (MPH) maps the probability of accidents using available crash data for a 10-year

period. The half-mile area centered on the key intersection of each station area was evaluated according to the crash prediction website *(see Figure 27).* Accident data for each station area is summarized in the Appendix. Key findings of the crash analysis are as follows:

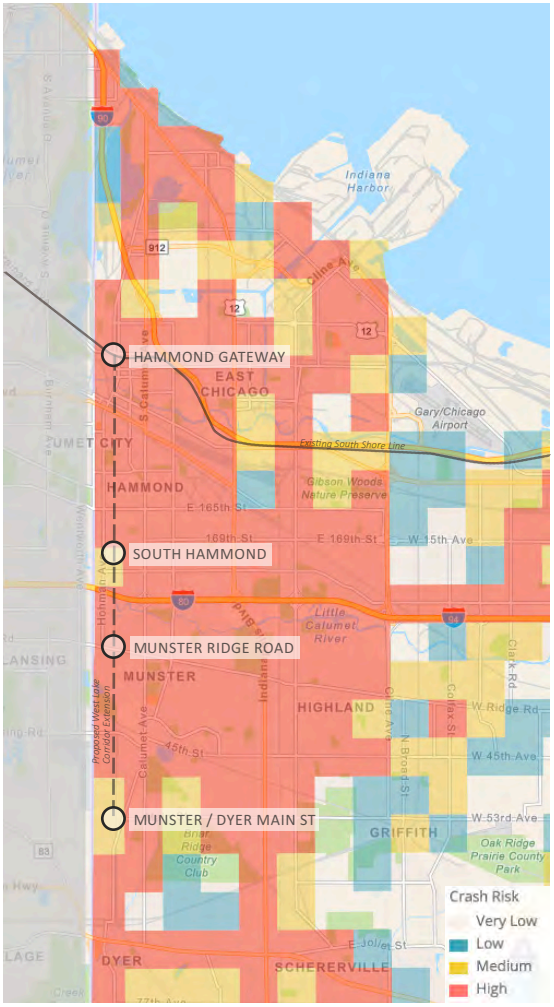
- **Hammond Gateway -** The area centered at the intersection of Gostlin Street and Sheffield Avenue is a high crash risk area during the AM (6-9 a.m.) and PM (3-6 p.m.) peak hours. Accidents are frequently due to vehicles that follow others too closely or from failing to yield to the correct right-of-way.

- **South Hammond -** The area within a half-mile of the intersection of 173rd Street and Lyman Avenue is a medium to high crash risk area during the a.m. peak hours, and is a high crash risk area during the p.m. peak hours. Accidents are frequently due to vehicles that follow others too closely.

- **Munster Ridge Road -** The area centered at the intersection of Ridge Road and Manor Avenue is a high crash risk area during the a.m. and p.m. peak hours. Many accidents are due to vehicles disregarding regulatory signs or signals or from failing to yield to the correct right-of-way.

- **Munster / Dyer Main Street -** The area within a half-mile south of the intersection of Main Street and Sheffield Avenue is a low crash risk area. The area to the north of the intersection is a medium crash risk and to the east is a high crash risk during a.m. and p.m. peak hours. Roads appear to be substantially affected by inclement weather as all crash risks increase in this station area when road conditions are slick. Most accidents are cited due to vehicles that follow others too closely.

Figure 27. MPH Crash Risk Map



Source: https://www.in.gov/isp/ispCrashApp/main.html

LAST MILE STRATEGIES

To maximize the benefits of TOD, the "last mile" connections to these stations must be oriented for pedestrians. A commuter or neighborhood resident will likely want to walk or bike that short distance to jump on the train. Planning for a street network framework that makes walking to transit easy is among the most useful and cost-effective mobility strategies. Additional strategies that were used when developing the station area plans are discussed in this section.

MARKED CROSSWALKS

Marked crosswalks designate paths where pedestrians may safely cross the street, and where drivers can expect them to cross. "Zebra-striped" crosswalks provide the highest visibility to pedestrians. At a higher cost, material options such as bricks or decorative pavers are often used as an alternative to white paint for their aesthetic benefit. At signalized intersections, the vehicular stop bar should be placed at least 10 feet before the pedestrian crossing to ensure cars do not encroach on the crosswalk. Where possible, use basic paint and stencils to make pedestrian crossings decorative, exciting, and unique.

"Zebra-striped" crosswalk

ROAD DIETS

For roads that experience fast-moving, heavy vehicle volumes with multiple lanes, a road diet is a low-cost solution that can benefit every mode. Typical applications convert existing four-lane roads into three-lane roads with a continuous two-way left turn lane. The reduction of lanes can dramatically reduce overall crashes and improve the operation and flow of the road. Non-motorized users will also benefit from road diets. In addition to reduced vehicle speeds, the conversion usually allocates dedicated lanes for bicyclists and/or sidewalks, further reducing conflicts. Pedestrians will benefit from the reduced vehicle speeds and the shorter and simplified crossing distances.

Road diet: before and after

SHARED MOBILITY

As ridesharing services such as Uber and Lyft continue to grow in popularity, these services can be used to help people with last mile connections, supplement access where transit is lacking, and encourage “car-light” or “car-optional” lifestyles. When incorporating shared mobility to supplement transit stations, drop-off locations should be clearly marked and located near station entrances in lieu of parking spaces. By making ridesharing easy, single-occupancy trips, traffic, and demand for parking are all reduced.

Rideshare pick-up and drop-off location sign

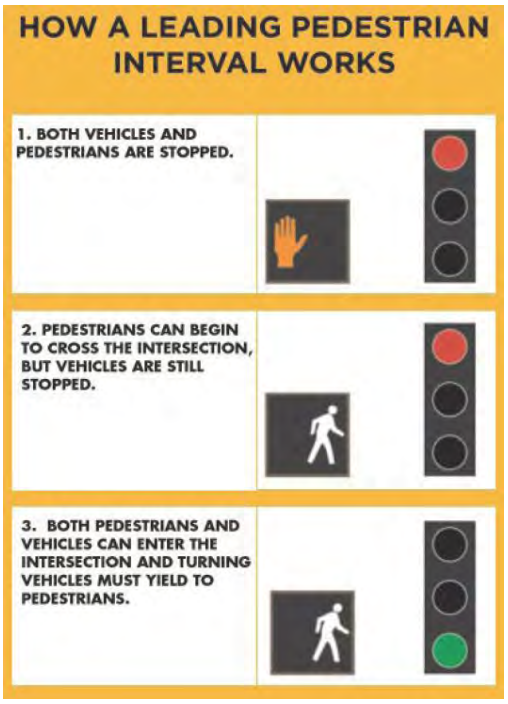
PEDESTRIAN COUNTDOWN TIMERS

A pedestrian countdown timer is an alternative to the typical pedestrian crossing signals, with the addition of numbers counting down the time remaining for pedestrians to clear the crosswalk. The pedestrian countdown timer begins in conjunction with the flashing “DON’T WALK” signal interval.

Pedestrian countdown timer

LEADING PEDESTRIAN INTERVALS

A leading pedestrian interval gives pedestrians a head start into an intersection before vehicles by changing the signal timing of the intersection. This helps reduce pedestrian/vehicle conflicts caused by turning cars at intersections.



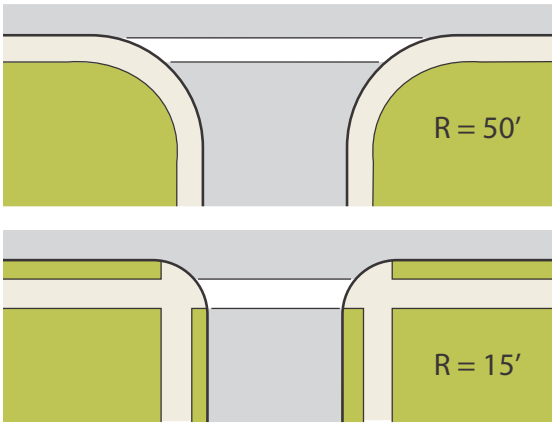
PEDESTRIAN REFUGE ISLANDS

A pedestrian refuge island is a protected area in the center of a multi-lane crossing that gives pedestrians a place to pause safely between traffic lanes in each direction. Pedestrian refuge islands should be at least six feet wide and should be protected by a curbed median on both sides. Detectable warnings (e.g. truncated dome surface areas), must also be installed to allow pedestrians who are visually impaired to detect the refuge island.

Pedestrian refuge island

CORNER RADIUS DESIGN

Large corner curb radii, typically found in auto-oriented areas, create sweeping curb arcs at intersections, which increases pedestrian crossing distance across traffic lanes, and allows vehicles to turn at relatively high speeds. By minimizing corner radii, pedestrians have more room to wait at corners, crossing ramps are better aligned, pedestrian crossing distances are shortened, and vehicles are forced to slow while turning.



A narrowed crosswalk due to a smaller corner radii (bottom)

CROSSING RAMPS AND TRUNCATED DOMES

All pedestrian crossings should meet specifications of the Americans with Disabilities Act (ADA), including slope, rise, width, and landing requirements. Ideally there should be a separate curb ramp for each crosswalk; ramps installed diagonally toward the center of an intersection serving two crosswalks are not preferred. All new crossing treatments should be outfitted with truncated dome textured ground surface indicators, which alert the visually impaired to a grade change or vehicular path.

Crossing ramp with a truncated dome surface

SPEED TABLES AND RAISED CROSSWALKS

A speed table and a raised intersection are essentially longer speed humps used to reduce vehicle speeds, and make pedestrians more visible by raising the crosswalk and intersection, respectively. This type of intersection treatment gives priority to the pedestrian by making a seamless sidewalk-level connection across vehicle lanes.

Speed table doubling as a raised crosswalk

LIGHTING

Sidewalks and intersections should have delightful lighting installed at a pedestrian scale, and directed onto pedestrian paths. Lighting installed along a major roadway is typically positioned such that the roadway is washed with as much even lighting for vehicle lanes as possible, while sidewalks adjacent to such roadways do not have direct lighting at an appropriate height to serve pedestrians. Appropriate pedestrian scale lighting can alleviate this issue.

Pedestrian-scale lighting

PLANTED CURBS AND EDGES

Consistent landscaping and edge treatments can also be used to make the pedestrian environment safer and more predictable for drivers. Planting trees between sidewalks and the roadway provide physical barriers, improved aesthetics, and sound absorption. A contiguous buffer of low plants along the sidewalk edge approaching a pedestrian crossing discourages pedestrians from jaywalking, or crossing outside the crosswalk itself. During winter months, snow mounds resulting from street snow removal must be shoveled out of pedestrian ramps and sidewalk connections at intersections. In addition, efforts should be made to identify native or salt-tolerant plants for these areas.

Planted curb with pedestrian paths to access sidewalk

MULTI-USE PATHWAYS

A multi-use pathway is a facility built for combined bicycle and pedestrian traffic, and is physically separated from motor vehicle traffic. Multi-use trails intended to accommodate both pedestrians and cyclists need to be wide enough and have clear sight-lines to accommodate users moving at different speeds, and should be clearly marked. The minimum width for such pathways is 10 feet to accommodate both pedestrians and bicyclists. Where possible, a minimum five-foot buffer should exist between the multi-use path and the roadway; vertical separation is preferred.

Multi-use pathway

TRAFFIC SIGNALS

While traffic signals are the safest location for pedestrians to cross, certain conditions must be met at an intersection to warrant a traffic signal to be installed; considerations include traffic volumes, pedestrian volumes, and nearby conditions. The investigation of the need for a traffic signal follows criteria set forth in the Manual of Uniform Traffic Control Devices (MUTCD) and may warrant installation if, for example, minor street traffic volumes are consistently above 75 vehicles per hour or if, during peak hours of the day, the minor street experiences 150 vehicles in an hour. Many different conditions may warrant signal control and the MUCTD guidebook describes those conditions. Other examples that may warrant a signal include intersections where pedestrian volumes are over approximately 130 people per hour or intersections where young, elderly, and/or persons with physical or visual disabilities need special consideration. Intersections near at-grade railroad crossings may also warrant signal control if the traffic signal will help improve safety for vehicles clearing the tracks

Traffic signals

ROUNDABOUTS

Intersections controlled by roundabout infrastructure have a lot of traffic capacity but accommodate it at slow speeds that are comfortable for the neighborhood. Roundabouts should be designed carefully to provide safe and defined pedestrian crossings since traffic is never under full stop control.

Roundabout

NARROW STREET AND LANE WIDTHS

Similar to corner radius design at intersections, street pavement and lane widths should be narrow to calm traffic (narrow travel lanes make vehicles go slower) and directly minimize the length of a pedestrian crossing. On-street parking is also a means to narrow apparent street width and provide a separation between the sidewalks and the travel lanes.

Narrow street in Seattle, WA

PART THREE: IMPLEMENT THE VISION TO ENSURE HIGH-QUALITY DEVELOPMENT

REGULATING FRAMEWORK

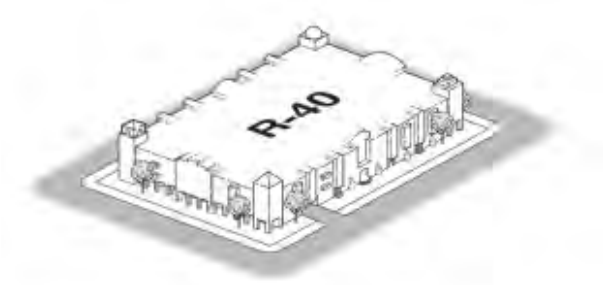
WHAT IS A FORM-BASED CODE?

A form-based code (FBC) is a land development regulation that fosters predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle. A FBC is not merely a design guideline; it is a regulation adopted into city, town, or county law. A FBC therefore offers a powerful alternative to conventional zoning regulation. FBCs are the fundamental best practice to effectively implement mixed-use places .

Conventional zoning: doesn't guarantee walkability

The five main elements of form-based codes are:

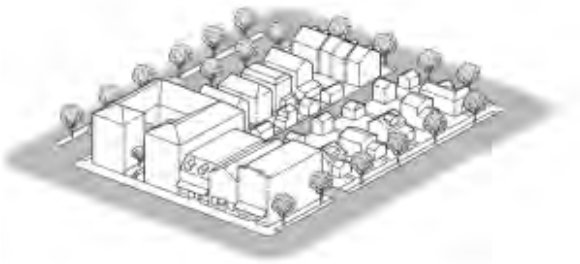
- A regulating plan
- Public standards
- Building standards
- Administration
- Definitions



Design guidelines: voluntary; enforced by negotiation

Additional elements can include architectural standards, landscaping standards, signage standards, environmental resource standards, and specific annotations.

There are a range of ways to incorporate a FBC into a community's development standards. Some communities opt to have the FBC comprehensively replace the current conventional zoning code. This method allows for the broadest range of quality control over future development. Alternatively, choosing a hybrid code combines FBC elements with the existing conventional zoning code *(see Figure 28).* Often, this results in an special district or overlay zoning.



Form-based code: supports walkable places

For more information on Form-Based Codes, visit: *http://formbasedcodes.org/content/uploads/2013/11/CMAP-GuideforCommunities.pdf*

Figure 28. Sample page from Bloomington-Normal, Illinois' form-based code

Main Street Corridor Form-Based Code

4-11. Building Type Standards: Rowhouse

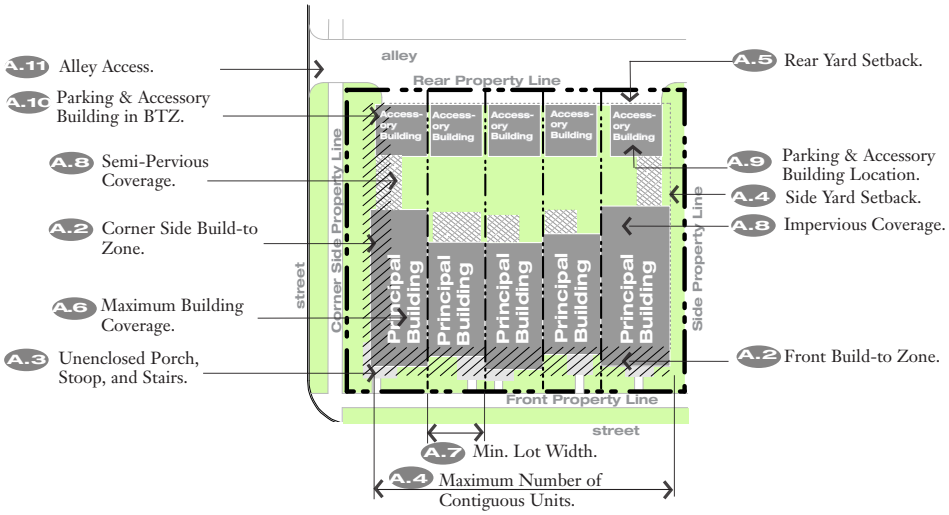


Figure 4-11.A: Building Siting.

A. Building Siting. (Refer to Figure 4-11.A)

A.1 Multiple principal buildings may be constructed on a single lot provided that each building meets all requirements in Section 4-11.

Street Frontage.

A.2 Front and corner side building Facades must be constructed within Build-to Zones located between five (5) and fifteen (15) feet into the site from the property lines.

A.3 Unenclosed porches, stoops, and stairs are permitted to encroach to two (2) feet from the front and corner side property lines.

Side & Rear Yard Setbacks.

A.4 Side yard setback shall be a minimum of five (5) feet.

a. A minimum of two (2) and a maximum of five (5) contiguous principal buildings are permitted without side yard setbacks.

A.5 Rear yard setback shall be a minimum of five (5) feet.

Buildable Area.

A.6 Maximum Building Coverage shall be sixty-five (65) percent of site area.

A.7 Minimum lot width is eighteen (18) feet per unit.

A.8 Maximum Impervious Site Coverage shall be eighty (80) percent; an additional ten (10) percent of the site may be Semi-Pervious.

Parking.

A.9 Surface parking is permitted in the rear yard, behind the back Facade of the principal building.

A.10 Parking is permitted within the corner side yard Build-to Zone, but may not be located closer to the corner side property line than the principal building Facade(s).

Driveways & Access.

A.11 If no alley exists, one (1) driveway per cluster of up to five (5) units is permitted.

A.12 If an alley exists, an additional driveway is not permitted.

B. Height & Use Requirements. (Refer to Figure 4-11.B)

Building & Floor Heights. (See 4-5 Measuring Height)

B.1 Principal building height shall be a minimum of one and a half (1 1/2) stories and a maximum of three (3) stories.

B.2 Allowable floor height is a minimum of eight (8) feet, maximum of fourteen (14) feet.

Uses

B.3 Specific use information can be found in Section 3 Uses.

B.4 Parking is permitted fully below grade or internally in the rear of the building with a minimum of fifteen (15) feet, measured from the front Facades, occupied by a permitted use other than parking.

PERMITTED BUILDING TYPES AND USES

RECOMMENDED REGULATING FRAMEWORK

The following pages provide an overview of a recommended regulating framework for a FBC for the West Lake TOD station areas.

The West Lake regulating framework plans are intended to provide the public and developers with a long-term vision of how each community is looking to adapt and grow around the proposed West Lake Corridor Extension Project. As indicated in the market study, the majority of these building types are not yet feasible in the short term, but will likely be by the 2040 horizon, given successful implementation of recommendations proposed in this report.

The Permitted Building Types and Uses Matrix *(see Figure 29)* is intended to serve as an at-a-glance reference of what building types are permitted by-right in the various use zones. For example, if a developer wanted to construct a mixed-use building, they would look for areas zoned MX-R, MX-C, MX-F, or MX-P. Alternatively, if someone owns property that has been zoned AR-2, they would see they are permitted to construct a four to eight unit residential building, a live-work building, townhomes, or paired homes. For details on the forms allowed for each of these building types, *see Figure 30.*

The four West Lake TOD station areas each have a regulating framework plan where select parcels are colored to denote which use zone regulations should be applied to them in the future *(see Figures 31-34).* The intent of these regulating plans are to help municipalities control the type and quality of new development in the TOD station areas.

For any of the communities to implement and enforce a FBC, each community would have to go through its own rigorous planning process and public comment period.

Figure 29. Permitted Building Types and Uses Matrix for the West Lake TOD Station Areas

ZONES	BUILDING TYPE	INSTITUTIONAL & CIVIC	MIXED-USE	ONE-STORY RETAIL	MIDRISE & COURTYARD	4-8 UNIT BUILDING	LIVE-WORK	TOWNHOMES, PAIRED HOMES (STACKED)	PAIRED HOMES, & SMALL-LOT SINGLE FAMILY
Mixed Use Retail Ground floor retail Non-retail: conditional use	MX-R	●	●	●					
Mixed Use Commercial Ground floor commercial Non-commercial: conditional use	MX-C	●	●	●					
Mixed Use Flex Flexible ground floor use	MX-F	●	●	●	●	●	●	●	
Mixed Use Parking Parking as primary use, designed for future development	MX-P	●	●	●	●	●	●	●	
Attached Residential Mid-scale density	AR-3				●	●	●	●	
Attached Residential Low-scale density	AR-2					●	●	●	
Residential Low-scale density	R-1								●
Neighborhood Residential	NR	Areas to be considered by municipality for future opportunities							

Source: Farr Associates, 2017

● **ALLOWED**

Figure 30. FBC BUILDING TYPES AND SPECIFICATIONS FOR THE WEST LAKE CORRIDOR

MIXED-USE (RETAIL, COMMERCIAL)

Dwelling units/acre	25-35
Lot size	NA
Setback (front, side)	0-5′, 5′
Uses	Retail, Commercial, Office
Unit Type	Condo/apartment; soft loft
Parking requirements	2.75 sp/1,000 sf Retail, 1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

MIXED-USE (FLEX, RESIDENTIAL)

Dwelling units/acre	30-35
Lot size	NA
Setback (front, side)	0-5′, 5′
Uses	Flexible, Residential
Unit Type	Condo/apartment; soft loft
Parking requirements	2.75 sp/1,000 sf Retail, 1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

ONE-STORY RETAIL

Dwelling units/acre	0
Lot size	NA
Setback (front, side)	0-5′, 5′
Uses	Retail, Office
Parking requirements	2.75 sp/1,000 sf Retail, 1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

MIDRISE & COURTYARD

Dwelling units/acre	30-35
Lot size	120′ +
Setback (front, side)	0′-10′
Uses	Residential
Parking requirements	1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

LIVE-WORK

Dwelling units/acre	6-8
Lot size	50’ x 110’
Setback (front, side)	5’-15’, 5’
Uses	Residential
Parking requirements	1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

4-8 UNIT BUILDING

Dwelling units/acre	20-30
Lot size	50’ x 110’
Setback (front, side)	0’-10’
Uses	Residential
Parking requirements	1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

TOWNHOME

Dwelling units/acre	20-30
Lot size	66’ x 110’
Setback (front, side)	5-15’, 5’
Uses	Residential
Parking requirements	1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

DUPLEX / STACKED DUPLEX

Dwelling units/acre	20-30
Lot size	50’ x 110’
Setback (front, side)	5-15’, 5’
Uses	Residential
Parking requirements	1 sp/du
Vehicular access	From alley; if no alley exists, 1 driveway per street frontage

HAMMOND GATEWAY

MIXED USE RETAIL
Ground floor retail
Non-retail: conditional use

MX-R


MIXED USE COMMERCIAL
Ground floor commercial
Non-commercial: conditional use

MX-C


MIXED USE FLEX
Flexible ground floor use

MX-F


MIXED USE PARKING
Parking as primary use, designed for future development

MX-P


ATTACHED RESIDENTIAL (MID)
Mid-scale density

AR-3


ATTACHED RESIDENTIAL (LOW)
Low-scale density

AR-2


NEIGHBORHOOD RESIDENTIAL
Areas to be considered by municipality for future opportunities

NR

Figure 31. Regulating framework for the Hammond Gateway station area

Source: Farr Associates, 2017

SOUTH HAMMOND

MIXED USE PARKING
Parking as primary use, designed for future development

MX-P


ATTACHED RESIDENTIAL (MID)
Mid-scale density

AR-3


ATTACHED RESIDENTIAL (LOW)
Low-scale density

AR-2


RESIDENTIAL (LOW)
Low-scale density

R-1


NEIGHBORHOOD RESIDENTIAL
Areas to be considered by municipality for future opportunities

NR

Figure 32. Regulating framework for the South Hammond station area

Source: Farr Associates, 2017

MUNSTER RIDGE ROAD

MIXED USE RETAIL
Ground floor retail
Non-retail: conditional use

MX-R


MIXED USE COMMERCIAL
Ground floor commercial
Non-commercial: conditional use

MX-C


MIXED USE FLEX
Flexible ground floor use

MX-F


MIXED USE PARKING
Parking as primary use, designed for future development

MX-P


ATTACHED RESIDENTIAL (MID)
Mid-scale density

AR-3


ATTACHED RESIDENTIAL (LOW)
Low-scale density

AR-2


Figure 33. Regulating framework for the Munster Ridge Road station area

Source: Farr Associates, 2017

MUNSTER / DYER MAIN STREET

MIXED USE RETAIL
Ground floor retail
Non-retail: conditional use

MX-R


MIXED USE COMMERCIAL
Ground floor commercial
Non-commercial: conditional use

MX-C


MIXED USE FLEX
Flexible ground floor use

MX-F


MIXED USE PARKING
Parking as primary use, designed for future development

MX-P


ATTACHED RESIDENTIAL (MID)
Mid-scale density

AR-3

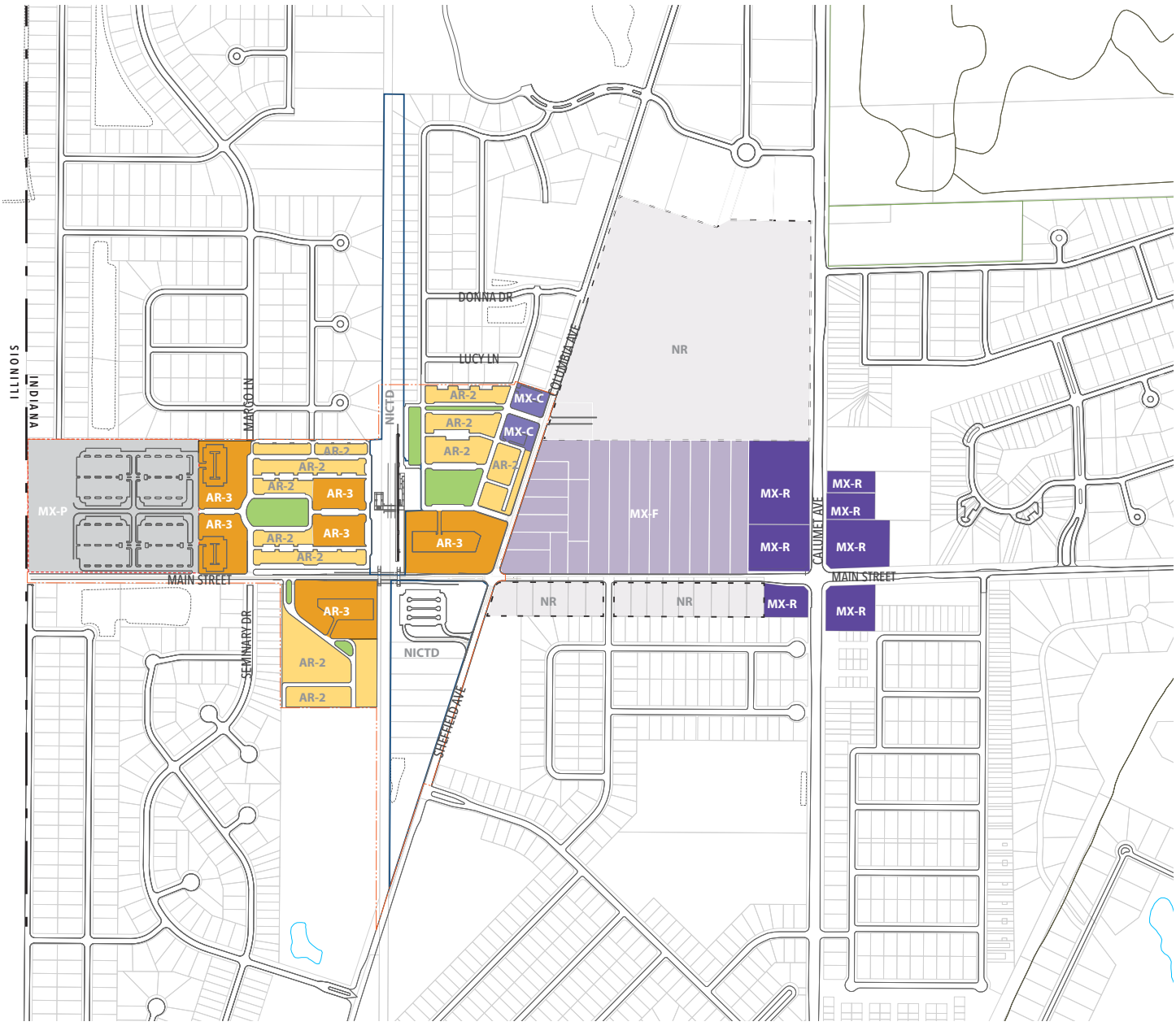

ATTACHED RESIDENTIAL (LOW)
Low-scale density

AR-2


NEIGHBORHOOD RESIDENTIAL
Areas to be considered by municipality for future opportunities

NR

Figure 34. Regulating framework for the Munster / Dyer Main Street station area



Source: Farr Associates, 2017

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DEVELOPMENT ANALYSIS

DEVELOPMENT ANALYSIS OVERVIEW

ASSESSING THE ROLE OF PUBLIC ASSISTANCE

This chapter examines the development feasibility of various transit-oriented development (TOD) product types proposed for station areas along the West Lake Corridor Project, and describes the impact of transit and complementary public investments on enhancing the financial feasibility of future development. The selected development product types correspond to the buildings identified in the TOD vision plans for each future station along the planned West Lake Corridor rail extension. The pro forma analysis identifies the relative feasibility of these different product types in the West Lake Corridor station areas today based on current market area rents, sales prices, and construction costs. Though the pro formas for some building types do not appear to be financially feasible under today's market conditions without public assistance, market conditions are very likely to improve in the station areas over time and public assistance can accelerate this progress. The findings below describe ways in which future transit investments and other public investments or actions work together to increase the relative value of the station areas over time. This "value premium" accelerates growth in attainable rents and sales prices, and shortens the time horizon for when new housing and commercial space become feasible to construct.

This development analysis supports the larger TOD visioning and planning process led by Farr Associates that has guided planning by the communities of Hammond, Munster, and Dyer, and also supports the New Starts grant application, which seeks funding to construct the rail facility. New Starts funding criteria favor projects that include planning for, and a strategic understanding of, attracting growth at future station areas. This chapter builds on the findings from previous work by Strategic Economics, including the market accelerator strategy completed in July 2017 *(see the West Lake TOD Supplemental Studies document)*.[1] That memo recommended specific market accelerator strategies to enhance private market investment by leveraging local opportunities and assets described in Strategic Economics' previously-completed market study *(see market study overview, pp. 26-28)*.[2]

METHODOLOGY OVERVIEW

Six conceptual building types – referred to as development "prototypes" – prepared by Farr Associates and located, as appropriate, in the four future West Lake Corridor station areas are tested based on today's market. *Table 1* describes the prototypes and the locations in which they were tested. These prototypes represent potential future residential and commercial products matching TOD vision plans developed by Farr Associates – in conjunction with community input – for the specific station areas. These prototypes do not reflect a specific or actual development project, but were instead developed to understand the general feasibility of different uses, building types, and locations in today's market. The feasibility of a specific, actual development project will vary according to a variety of factors, including the building design, site constraints, construction costs, financing costs, attainable rents and sales prices, etc., all of which are highly variable depending on broad market

1 Strategic Economics, "West Lake Corridor TOD Market Accelerator and Funding Strategies Memo," prepared for the Northwest Indiana Regional Development Authority, July 25, 2017.

2 Strategic Economics, "Northwest Indiana West Lake Corridor: Transit-Oriented Development Market Study," prepared for the northwest Indiana Regional Development Authority, February 8, 2017.

TABLE 1. Conceptual building prototypes, by station area* location

	STATION AREA* PROTOTYPES								
	Hammond Gateway	South Hammond	Munster Ridge Road				Munster / Dyer Main Street		
	Office and Retail Mixed Use	Small Lot Single Family	Condo	Rental Apts	Townhomes	Rental Apts and Retail Mixed-Use	Condo	Rental Apts	Townhomes
Floors	3	2-3	3	3	2-3	3	3	3	2-3
Gross Building Area (sf)	111,360	2,400	46,200	46,200	2,000	33,900	46,200	46,200	2,000
Leasable Building Area by Use (sf)	89,700	0	37,000	37,000	0	27,100	37,000	37,000	0
Residential	0	0	37,000	37,000	0	21,100	37,000	37,000	0
Office	86,700	0	0	0	0	0 sf	0	0	0
Ground Floor Commercial	3,000	0	0	0	0	6,000	0	0	0
Parking Format	Split Deck	Garage (detached)	Surface	Surface	Tuck-under	Surface (shared lot)	Surface	Surface	Tuck-under
Parking Spaces	246	2	88	88	2	72	88	88	2
Dwelling Units (DU)	0	1	37	46	1	23	37	46	1
Average DU size	N/A	2,400	1,000	800	2,000	900	1,000	800	2,000

*The prototypes were assumed to be located within a half-mile of the future West Lake Corridor stations.

Source: Farr Associates, 2017.

factors and the individual developer. Furthermore, these prototype pro formas do not assume any public assistance is provided, with the developer, therefore, required to support the full market costs of land and any project-specific and off-site infrastructure costs.

Strategic Economics used a "static" pro forma model that solves for residual land value to measure feasibility. This approach compares the value of the project against the costs of building it. The residual land value is what remains when costs are subtracted from project value, indicating the estimated price a developer would be able to pay for the land if pursuing a given development project. The method involves the following steps:

1. Estimating all development costs (except land cost), including "hard" costs (direct construction costs),"soft" costs (indirect costs such as architecture and engineering fees, permits and taxes, etc.), financing costs, and an expected return on investment;
2. Estimating the value of the project based on expected revenues from unit sales or rental leases; and

3. Calculating the residual land value by subtracting (1) from (2).

The residual land value method is a widely accepted technique for testing development feasibility at a very general level. The approach recognizes that the value of land, or any given development site, is closely tied to what can be built on that site, and that this development potential is heavily influenced by location, zoning, lot size and configuration, neighborhood context, and other factors. Because the residual land value supported by a development prototype is closely related to that prototype's economic value, this method is a useful tool for comparing relative feasibility across locations and building types. However, it is important to note that a developer-driven pro forma would include a much greater level of specificity – including more inputs – and would solve for some measure of return on capital. For the purposes of this analysis, Strategic Economics applied assumptions regarding revenues and costs based on market research, related feasibility studies conducted for the West Lake Corridor,[3] and interviews with developers active in the region. These are described in more detail in the full memo in the West Lake TOD Supplemental Studies document.

PRO FORMA ANALYSIS RESULTS UNDER CURRENT MARKET CONDITIONS

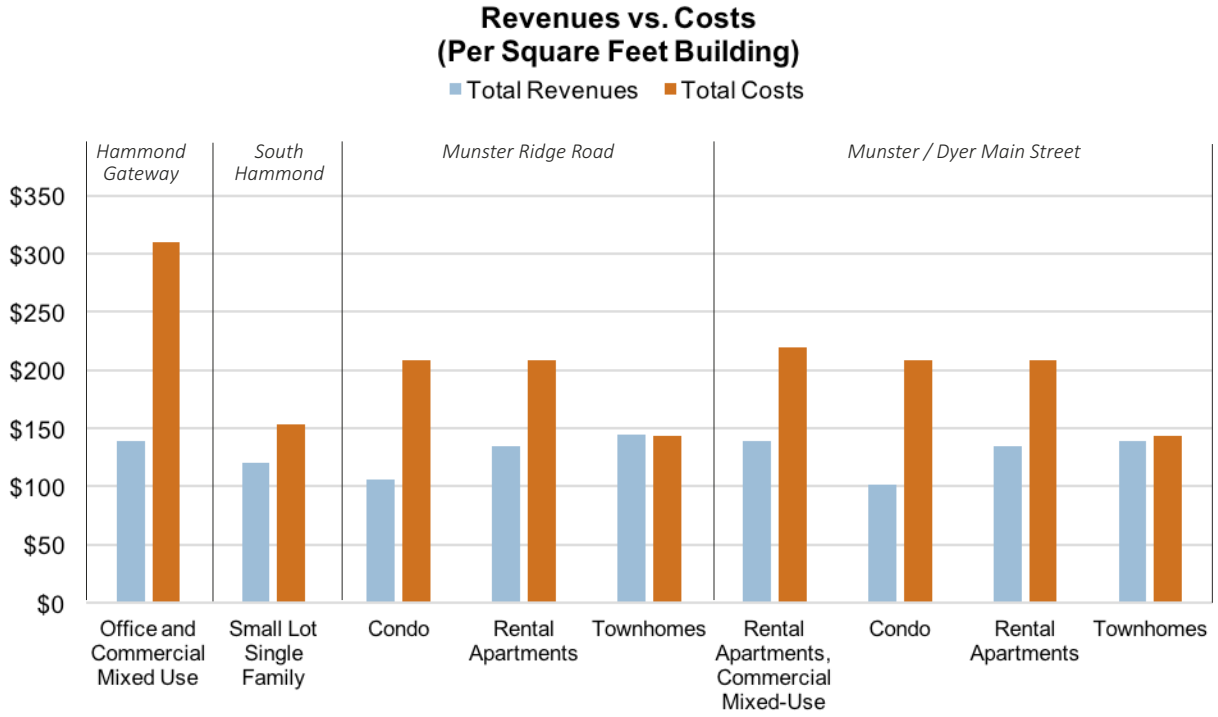
The findings from this analysis indicate that, in today's market conditions at the future West Lake Corridor station areas, and using very general assumptions about costs and revenues, additional increases in attainable rents would be required for the tested prototypes to become financially feasible. As described in the next section, rent and sales prices are likely to increase over time in the future West Lake Corridor station areas, as rail construction is completed and with the recently developed public investments and financing tools. These increases in rent and sales prices – coupled with the price premiums associated with rail transit access, new building product types, and the emergence of additional amenities and destinations at station areas – suggest that the prototypes will become feasible over time as these complementary public investments are completed. As shown in *Figure 35*, the total costs currently associated with each prototype exceed current total revenues, with revenues based on current rents and sales prices found in the stations' market areas, plus a slight premium to account for the newer product in a location that will be served by transit.

The residual land value is effectively the price a developer could afford to pay for the land if he or she were to undertake the given project. Market land values, researched by KPMG for a previous feasibility analysis, were estimated at $1.25 per square foot for residentially-zoned land and $2.50 per square foot for commercially-zoned land.[4] As shown in *Table 2*, the townhome prototype at the Munster Ridge Road station is closest to being financially feasible, supporting a land value of $0.14 per square foot. In contrast, development of the tested mixed-use office and retail prototype at the Hammond Gateway station would support a land value of *negative* $257 per square foot of land. Based on the supportable residual land values associated with the prototypes, additional increases in rents and sales prices over time are necessary to make the prototypes financially feasible.

3 KPMG, "Real Estate Feasibility Analysis," prepared for the Northwest Indiana Regional Development Authority, April 2017.

4 KPMG, "Real Estate Feasibility Analysis," prepared for the Northwest Indiana Regional Development Authority, April 2017.

FIGURE 35. Project Valuation Compared to Total Development Cost Under Current Market Conditions, per Square Foot of Built Area



Source: Strategic Economics, 2017.

Townhomes and small-lot single-family homes are closest to becoming feasible in the short-term with only modest increases in attainable sales prices required; it is also possible that with minor modifications to these prototypes, unique site conditions or developer circumstances, and public investments and financing tools could allow these products to be built even sooner. Higher-density multistory apartments and condominiums may become feasible in the mid-term (perhaps 5 to 10 years, though exact timing will vary depending on market cycles). *Figure 36* shows the relative percent increases in revenues required for the prototypes to be developed in today's market. The relatively strong performance of townhomes and single-family homes is driven by low construction costs for these products and the sales prices they could likely command in Munster and Dyer. Additionally, townhomes efficiently use the land on which they are built. Among the multifamily prototypes, apartments are more likely to be feasible than condominiums in the short- to mid-term, primarily because rental products perform better under current market conditions; however, this could change over time.

The sole office prototype – tested based on a location in the Hammond Gateway station area – is infeasible as tested under current market conditions, yet also offers significant long-term potential. Under current development conditions, the tested office prototype would require

TABLE 2. Supportable Residual Land Value Versus Market Land Values

Stations	Hammond Gateway	South Hammond	Munster Ridge Road				Munster/Dyer Main Street		
Prototypes	Office and Retail Mixed Use	Small Lot Single Family	Condo	Rental Apts	Townhome	Rental Apts, Retail Mixed-Use	Condo	Rental Apts	Townhome
Residual Land Value ($/sf)	-$257	-$19.93	-$60.19	-$43.26	$0.14	-$60.91	-$63.01	-$43.26	-$2.61
Current Market Land Value ($/sf)	$2.50	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25

Sources: Market land values via KPMG, 2017; Strategic Economics, 2017.

significant increases in rent to become feasible, due primarily to the higher price commanded for commercial land (thus setting a higher bar for the supportable residual land value), low office rents in the market area, and the high construction costs of high-quality office space. Although these are very real challenges, an office product could become feasible somewhat earlier than suggested by the analysis, as the Hammond Gateway station is located at the confluence of the existing South Shore Line and future West Lake Corridor making it a promising commute destination. This could sway potential office tenants to place a high value on locating near the station, perhaps including tenants interested in a build-to-suit office product (rather than the speculative development project implied by the prototype analysis). Furthermore, a real-world developer would iteratively design the most cost-efficient office building possible while still meeting land use regulations and tenant needs.

LEVERAGING TRANSIT INVESTMENTS TO ENHANCE DEVELOPMENT FEASIBILITY

There is potential to leverage the introduction of rail service, public financing tools, enhanced community amenities, and planned higher-density development projects in West Lake Corridor communities, to accelerate development feasibility. The development analysis recognizes and assumes that communities along the West Lake Corridor are currently an "unproven" market for higher-density product types and TOD, with limited ability to attract higher rents and sales prices for a higher-density product near transit.

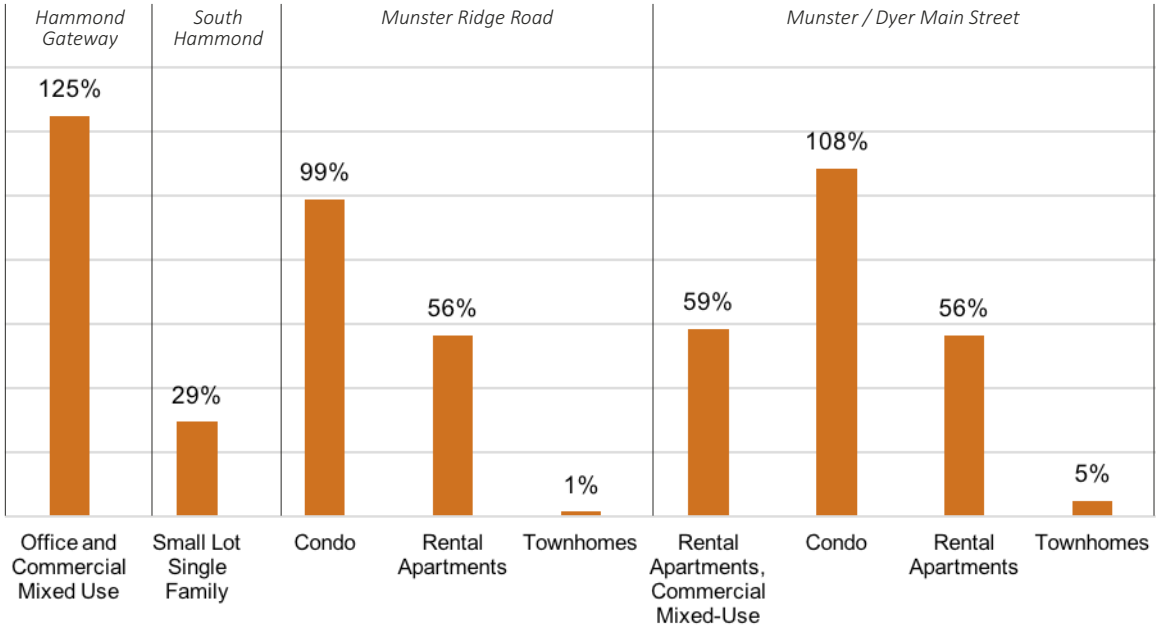
However, current development activity and interest along the West Lake Corridor suggests early growing momentum for higher-density products in locations with multimodal access and significant amenities. Transit alone can significantly enhance development feasibility, as it can be a desirable amenity. What follows are early indicators that interest is growing in higher-density development in the West Lake Corridor communities, followed by an explanation of the impact of transit on enhancing development feasibility.

DEVELOPMENT ACTIVITY AND DEVELOPER INTEREST HAVE BEGUN TO "PROVE" THE MARKET FOR MORE INTENSE HOUSING DEVELOPMENT

Signs of a gradual market transition towards higher-density housing product types are already occurring in communities along the West Lake Corridor, as demonstrated by development activity in the area and feedback from local developers. For example, the proposed multifamily housing at Centennial Village in Munster is a four-story mixed-use retail and residential building, and is being built in a walkable urban environment. The tested multifamily prototypes at the future Munster Ridge Road and Munster / Dyer Main Street stations are similar to the Centennial Village condominiums, though the prototypes are only three stories, and only one prototype includes ground-floor retail.

Centennial Village's design and amenities are similar to a TOD district – except without the transit – since it is also planned to include condominiums in a multistory building over a parking garage, and is located in a walkable mixed-use area that includes retail, restaurants, a grocery store, and a hotel. The development is also located near the popular Centennial Park. While attainable sales prices of the condominiums are unknown since the project is still being developed, Centennial Village can serve as proof of concept that, by integrating a unique housing product in the right setting, higher-density and mixed-use projects can attract buyers or renters willing to pay a premium for a walkable area with easily-accessed retail and other amenities.

FIGURE 36. Percent Revenue Increase Required to Achieve Financial Feasibility Under Current Development Market Conditions



Source: Strategic Economics, 2017.

Developers interviewed for this study expressed strong interest in the market potential to construct more mixed-use and relatively higher-density products near future West Lake Corridor stations. This long-term perspective is based on the development community's recognition of the success that small to midsize suburban Illinois communities on Metra commuter rail lines, such as the Village of Orland Park, the Village of Grayslake, and the Village of Glen Ellyn, have had with higher-density, mixed-use projects. Well-located multifamily products with complementary amenities performed well near transit, even in communities that are more typically developed in a low-density, single-use pattern. However, it is important to note that "jump-starting" development of the higher-intensity multifamily housing constructed in these suburbs involved public support through a variety of mechanisms, several of which are described in the final section of this chapter.

TRANSIT ENHANCES DEVELOPMENT FEASIBILITY BY EXPANDING COMPETITIVENESS FOR NEW MARKET SEGMENTS

The creation of TOD at the future West Lake Corridor stations will broaden the market segments of residents and employers for which these areas can compete. The West Lake Corridor commuter rail service will create a new, convenient connection to the Chicago Loop and its high concentration of regional jobs. The TOD vision plans also include other station area improvements – such as improved bicycle and pedestrian access, open space, and other amenities – that help to form a functioning multimodal TOD district. A place with this mix of assets has never existed along the planned West Lake Corridor. This new offering will therefore enable Hammond, Munster, and Dyer to compete for a new segment of buyers and renters from throughout the region who would be drawn to living in the West Lake Corridor if such a TOD district were offered. The West Lake Corridor communities will be able to compete with Illinois communities served by Metra station areas, yet also offer Indiana's otherwise low cost of living and high quality of life.

The widened demand for living and working near future stations translates into a willingness of potential future residents and businesses to pay higher rents and sales prices to live in a TOD. A body of evidence from other communities with new transit corridors has demonstrated the existence of a value premium for new TOD locations, created as existing local residents and "in-migrants" from other parts of the region – in this case, areas closer to the central Chicagoland region – are willing to pay higher prices and rents for desirable TOD products and regional employment access. It is difficult, however, to gauge the magnitude and timing of such a value premium in the West Lake Corridor communities, since TOD and robust transit service are previously unknown in this area.

Research from the Center for Transit-Oriented Development (CTOD) describes the mechanism by which the introduction of transit can enhance the feasibility of development over time and across product types. In addition to enhancing revenues through the value premium described above, transit and other multimodal transportation options can also reduce costs by allowing developers to provide less parking.[5] Before the

5 Center for Transit-Oriented Development, "Capturing the Value of Transit," prepared for the U.S. Department of Transportation Federal

introduction of transit, a low-density townhome project may be the most profitable building type for a developer to construct, as this analysis has found. As shown in the generalized illustration of development feasibility in *Figure 37*, however, the introduction of transit service not only improves the feasibility of such lower-density products, but also opens the possibility of other housing products becoming more feasible. These products – such as multifamily apartment or condominium buildings – are more expensive to construct on a per square foot basis, but also benefit from increases in rents or sales prices by concentrating value.

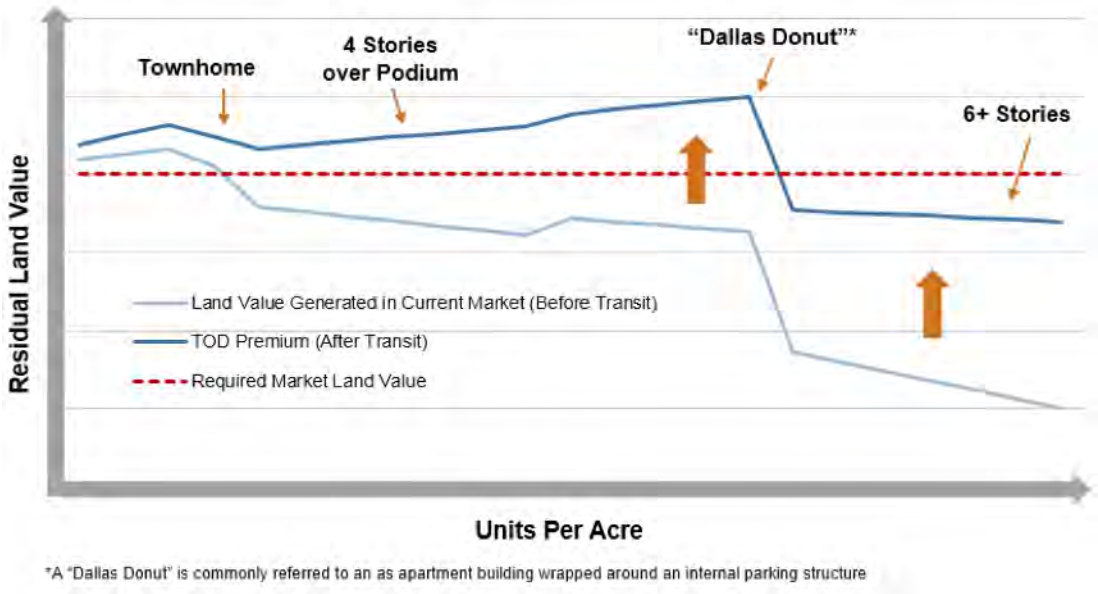
PUBLIC FINANCING THROUGH THE RDA

The probability of commuter rail expansion and an accompanying appropriate level of TOD surrounding the rail amenity has been fostered by the actions of the Indiana General Assembly over the past four years. In the State's 2015-17 biennial budget, the legislature appropriated $6 million per year for 30 years to provide debt service assistance to the RDA to ensure that the State/ Local portion of the construction funding could be secured as part of the FTA's New Starts program. The remaining balance of the financing will be supported by the RDA's own substantial source revenues.

Following this budget, in 2017 the legislature passed HEA 1144-2017, which provides the RDA with the necessary powers to serve as a "regional redevelopment commission." These powers allow the RDA to create tax increment financing (TIF) districts in or around the station areas. These districts will capture the increases in property

Transit Administration, 2008.

Figure 37. General Conceptual Illustration of the Impact of the "TOD Premium" on Development Feasibility for Different Housing Product Types



Sources: Center for Transit-Oriented Development, 2008; Strategic Economics, 2017.

and local income tax revenues above the base that existed at the time of adoption, and reinvest that revenue to provide needed infrastructure or engage in gap financing. The estimates of property tax revenue that could be collected within these districts and used for infrastructure investment exceeds $435 million over a 20-year period. The RDA has been directed by the State to engage in, direct, incentivize, and manage development centered around commuter rail for the next three decades and is held accountable to report to the State on its progress annually.

OTHER STRATEGIES TO ENHANCE EARLY DEVELOPMENT FEASIBILITY

Although the value premium generated by robust commuter rail service will help to improve the development feasibility of projects near future West Lake Corridor stations, a variety of other tools exist for public agencies to assist early projects that are deemed to be catalysts for future development.

- **Publicize opportunities and benefits created by new rail service.** A TOD marketing and outreach campaign focusing on the benefits of the West Lake Corridor's regional job connection, tax-base growth, and new development around the stations can help developers, business owners, and the general public understand short- and long-term development opportunities at the new station areas.

- **Provide funding assistance for catalytic projects that support the TOD vision plans and create value.** Funds can assist with site acquisition (e.g., discounted land), structured parking, and identifying potential publicly owned land for development and/or assisting in longer-term land banking of key sites.

- **Consider a tax abatement program to encourage early TOD.** Tax abatement programs vary by place, but they typically reduce or exempt property taxes, provided the property owner meets certain criteria. As an economic incentive tool, tax abatement programs should provide benchmarks for the type of investments targeted (e.g., job creation, property investment, wage increases) and specify the length of abatement.

- **Build short-term value through subsidized and institutionally-led development by identifying funding and financing sources to pay for TOD implementation.** Specific funding and financing sources are described in Strategic Economics' July 2017 memo, which also outline a comprehensive set of "market accelerator" strategies for each station area *(see the West Lake TOD Supplemental Studies document)*.[6] Funding for off-site improvements could include streetscape improvements (e.g., sidewalks, lighting, landscaping, public furniture), bicycle infrastructure, trails and public parks, and utility upgrades. Research has shown that streetscape enhancements[7], open space[8], and walkability[9] have a direct impact on property values. These public benefits can increase activity along the corridor and help accelerate long-term desirability for new market-rate projects in the area.

6 Strategic Economics, "West Lake Corridor TOD Market Accelerator and Funding Strategies Memo," prepared for the Northwest Indiana Regional Development Authority, July 2017.

7 Wachter and Gillen, "Public Investment Strategies: How They Matter for Neighborhoods in Philadelphia," The Wharton School, University of Pennsylvania, 2006.

8 Nicholls S., and J. L. Crompton. "The Impact of Greenways on Property Values: Evidence From Austin, Texas." Journal of Leisure Research 37, No. 3: 321-34, 2005.

9 Cortright, Joe. "Walking the Walk: How Walkability Raises Home Values in U.S. Cities." CEOs for Cities, 2009.

APPENDIX: ADDITIONAL INFORMATION

STAKEHOLDER INTERVIEWS SUMMARY

HAMMOND

General

- Schools are under capacity
- People don't walk and transit system is poor
- Need ample parking because people will be coming from Illinois
- Current Hammond station parking lot is at 100% capacity
- Property acquisition and resident relocation due to Gostlin Street reconstruction and the future Hammond Gateway station went up from 60 homes to 150 homes (home owners were compensated for home value and relocation)

Challenges

- Area is prone to flooding
- Truck traffic on Chicago Street is concerning
- Don't want Hammond Gateway station area competing with the Downtown area
- Don't want people parking on residential streets (Hammond South Station)
- Concerned about noise at Hammond South Station (can it be a quiet zone?)

Aspirations

- Create a transportation hub
- Transportation amenities for those that are disabled
- Create more job training programs
- TOD could attract younger families to bring more kids in
- Create a destination (central green space or plaza) in the middle of the station area
- Allow bikes to connect to Monon Trail
- Hammond Gateway would be the first thing people see when they arrive in Hammond
- Want a small parking footprint (Hammond South Station)

MUNSTER

General

- Munster is a very safe community (10th safest in Indiana)
- Has a very affluent community – many work in Chicago, so would be supportive of a TOD
- Aging population - 68% don't have kids in school
- No increase in student enrollment in schools
- People like and use the Monon Trail
- Egress/Ingress is a key factor for banks when underwriting loans for new development (not so much parking)

Challenges

- Residents have a poor perception of affordable housing (think of towers on the South side of Chicago)
- People are concerned about their property values going down
- If affordable housing is added, schools will have to add more social service programs for higher-need students
- Munster doesn't have an identity

Aspirations

- Find local talent for businesses
- Provide housing at all scales
- Need sidewalks everywhere
- Would like to see a walkable community
- Value landscaping and lighting
- Cutting edge efforts (living building challenge, LEED-ND, green buildings, permeable paving, etc.)
- Commercial along Ridge Ave should be evaluated in a comprehensive way
- Munster side would be okay connecting to Dyer through development
- Munster should have a town center (Flossmoor, Ft Wayne, Carmel)

DYER

General

- Haven't seen any examples of stations with a thriving area around them
- Don't want big box stores
- How will TOD affect property values?
- Young people are leaving Dyer – no jobs, no transportation

Challenges

- Church intersection (45th Street and Margo Lane) is a big problem, especially on Sundays
- Concern over crime in Lansing, Dalton, etc. coming into Dyer – "keep Dyer sanitized"
- There is a stigma with rental housing in Dyer
- Concern about train being used for crime and drug trafficking
- Concern about noise coming from layover facility

Aspirations

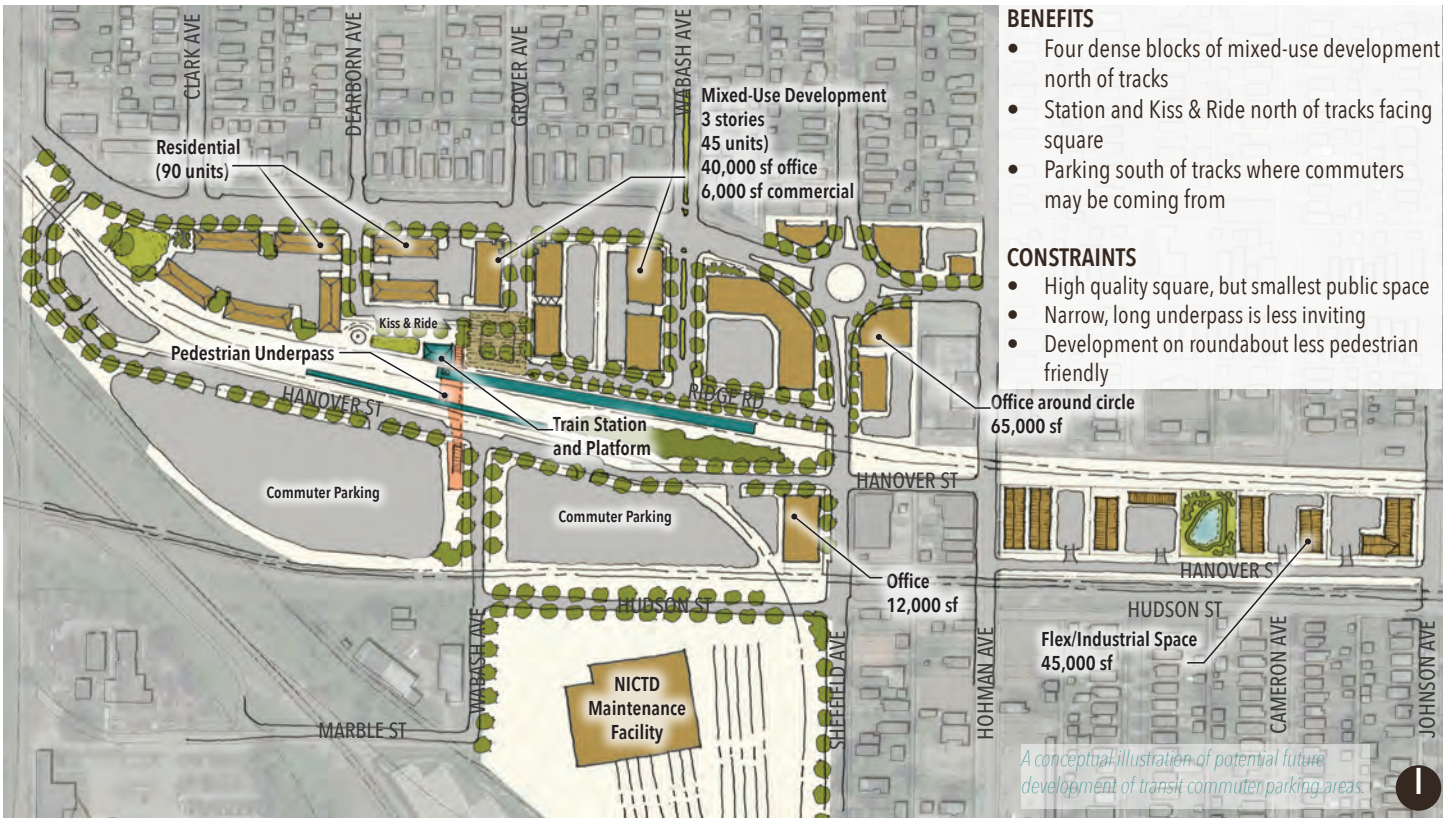
- More landscaping and art
- Sustainable stormwater management (permeable pavers?)
- Connection between Joe Orr Road and Main Street
- Keep young people in Dyer by creating jobs and transportation options

PRELIMINARY STATION AREA PLANS

01 GATEWAY PLAZA

HAMMOND GATEWAY

02 STATION SQUARE



BENEFITS

- Four dense blocks of mixed-use development north of tracks
- Station and Kiss & Ride north of tracks facing square
- Parking south of tracks where commuters may be coming from

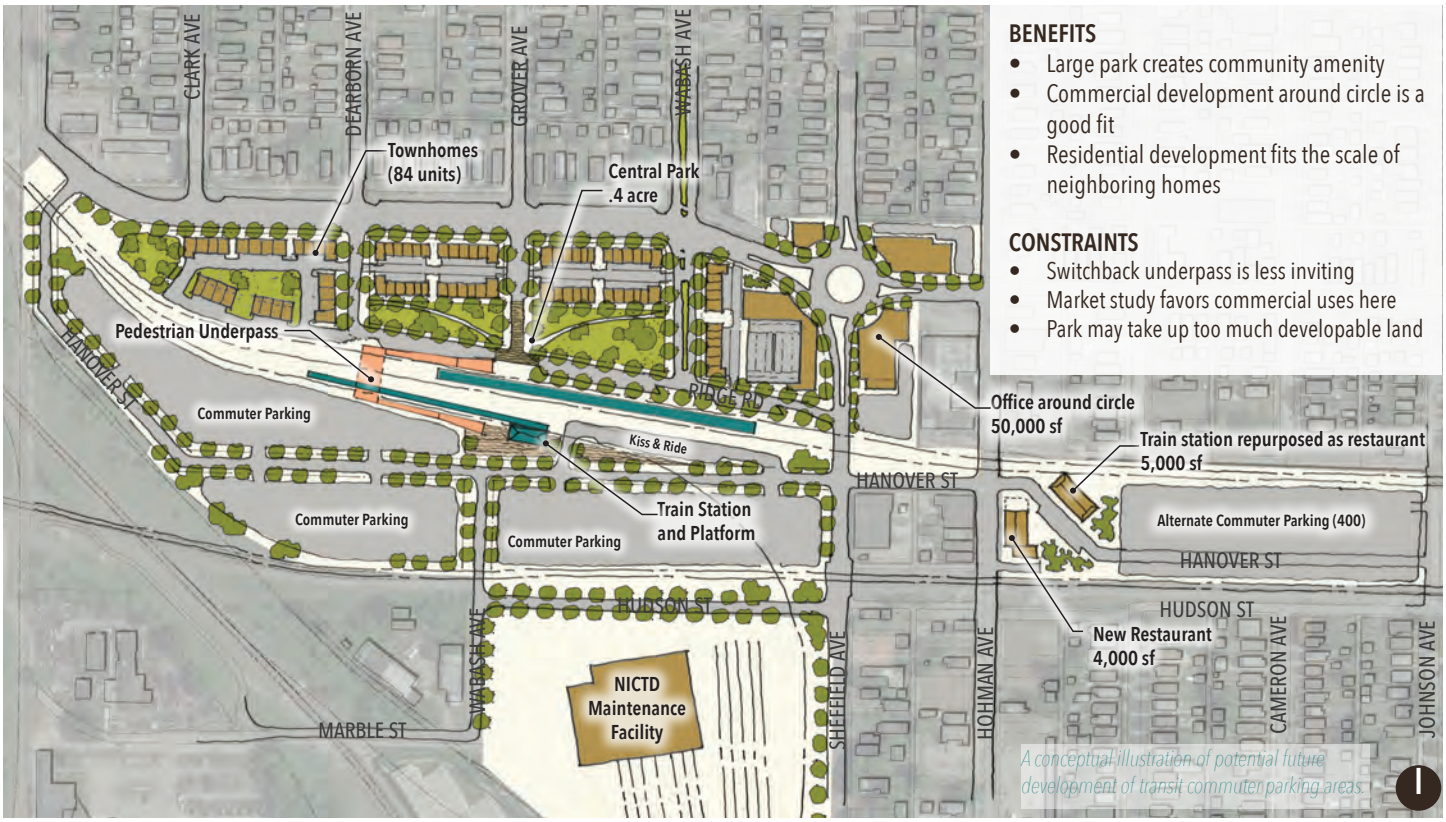
CONSTRAINTS

- High quality square, but smallest public space
- Narrow, long underpass is less inviting
- Development on roundabout less pedestrian friendly

A conceptual illustration of potential future development of transit commuter parking areas.

HAMMOND GATEWAY

03 CENTRAL PARK



HAMMOND GATEWAY

SOUTH HAMMOND

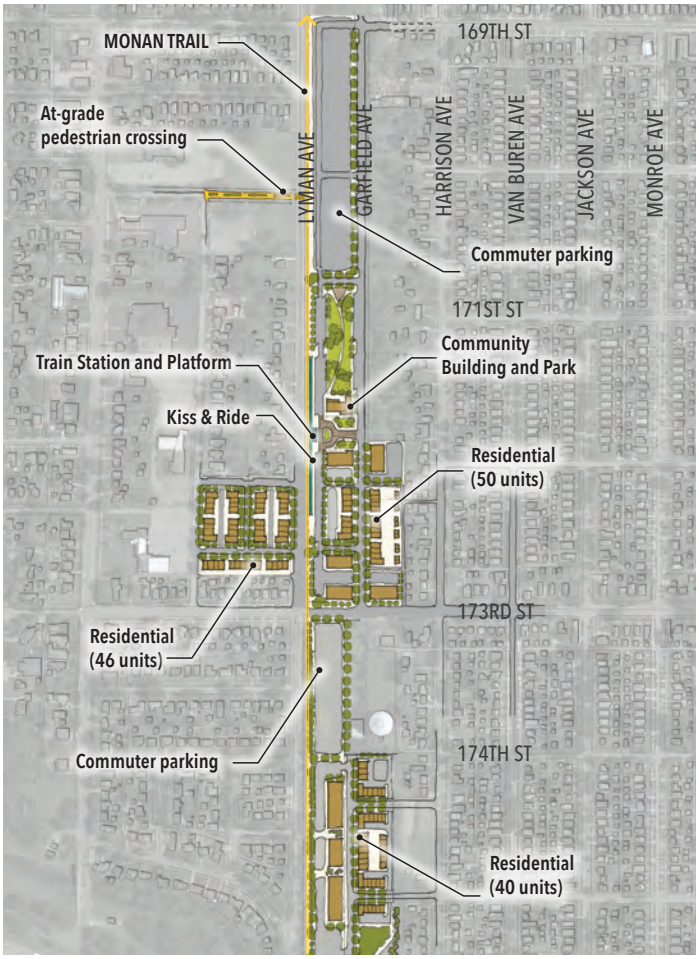
01 POCKET NEIGHBORHOODS

BENEFITS

- Pocket neighborhoods are anchored by green space
- Parking in the middle of the site is convenient for commuters
- Development is easily phased

CONSTRAINTS

- Parking in the middle favors commuters over walk-to customers
- Development is discontinuous



SOUTH HAMMOND

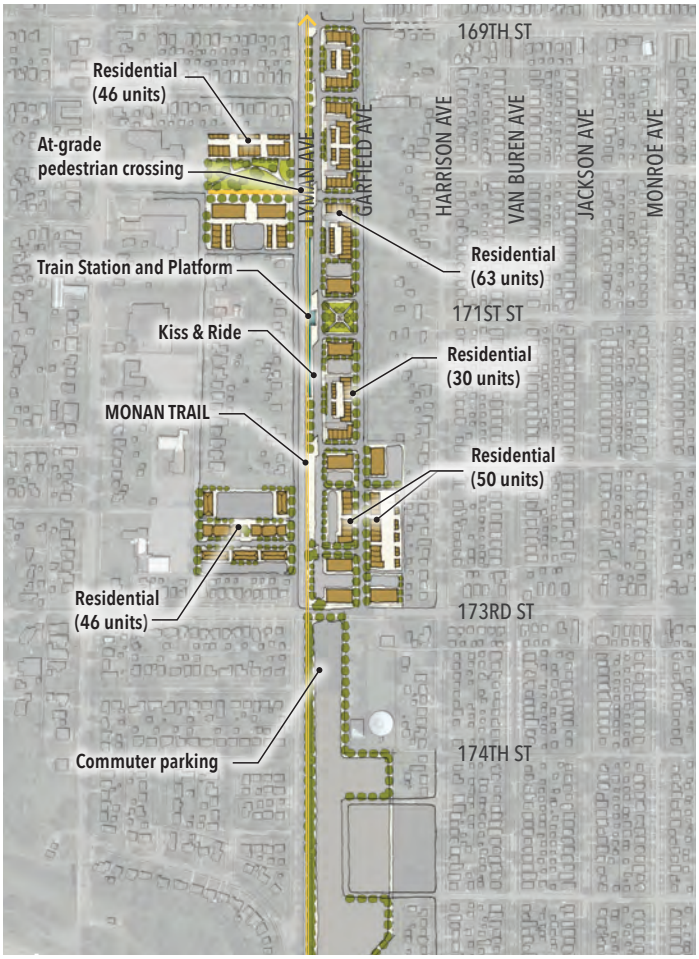
02 MONON PARK

BENEFITS

- Large park and community building serves as a destination and fills 'park desert'
- Development north of 173rd St makes a nice place
- Development south of 173rd can achieve critical mass

CONSTRAINTS

- Parking south of 173rd separates development from station
- Commuters coming from 173rd St will have further to drive
- No funding identified for park



SOUTH HAMMOND

03 SOUTH SQUARE

BENEFITS

- Continuous walkable development north of 173rd St
- Two parks serve both sides of the tracks (.5 acres, 1.7 acres)
- Development next to at-grade pedestrian crossing is conveniently located

CONSTRAINTS

- Station location assures long commuter walk
- Having all parking located south of 173rd St stresses turning movements

MUNSTER RIDGE ROAD

01 MAIN STREET

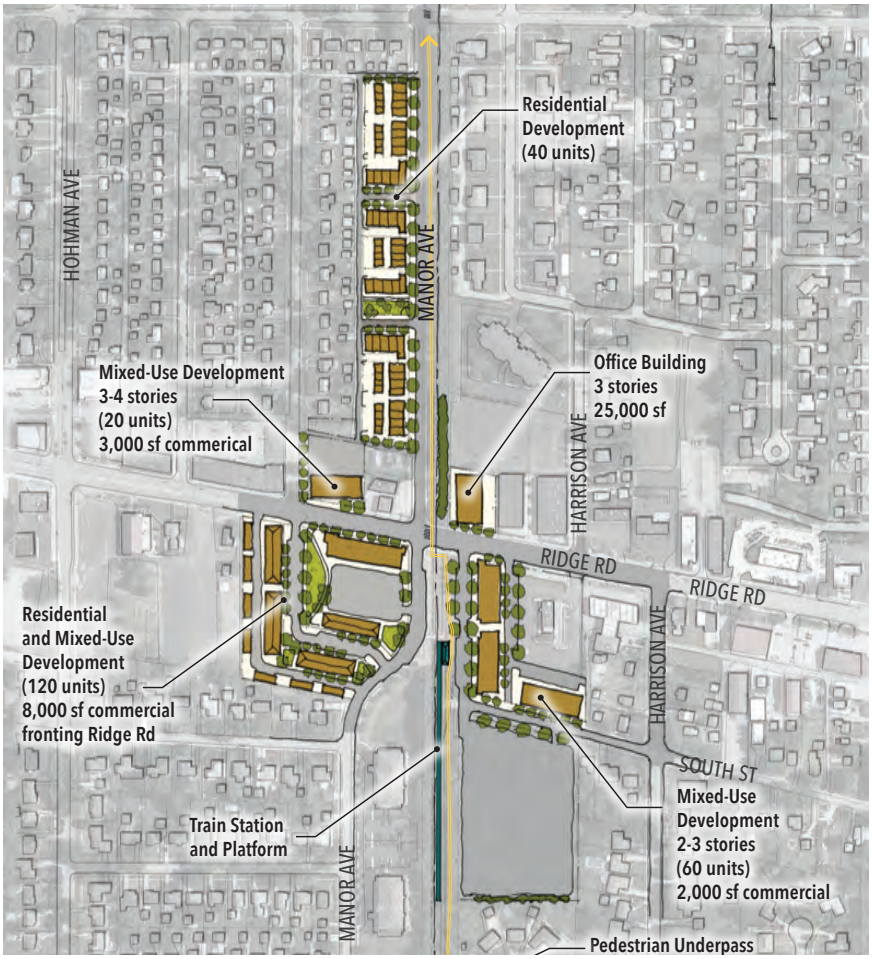
BENEFITS

- Harrison extension provides second access point
- New mixed-use development enchances north side of Ridge Rd
- Diverse housing types along Manor Ave strengthen the Munster housing market
- Retains existing fountain at Ridge Rd
- 7 acres of development

CONSTRAINTS

- Ridgewood Plaza stip mall remains
- Development between Ridge Rd and South St requires cooperation of all landowners

A conceptual illustration of potential future



MUNSTER RIDGE ROAD

02 TOWN CENTER

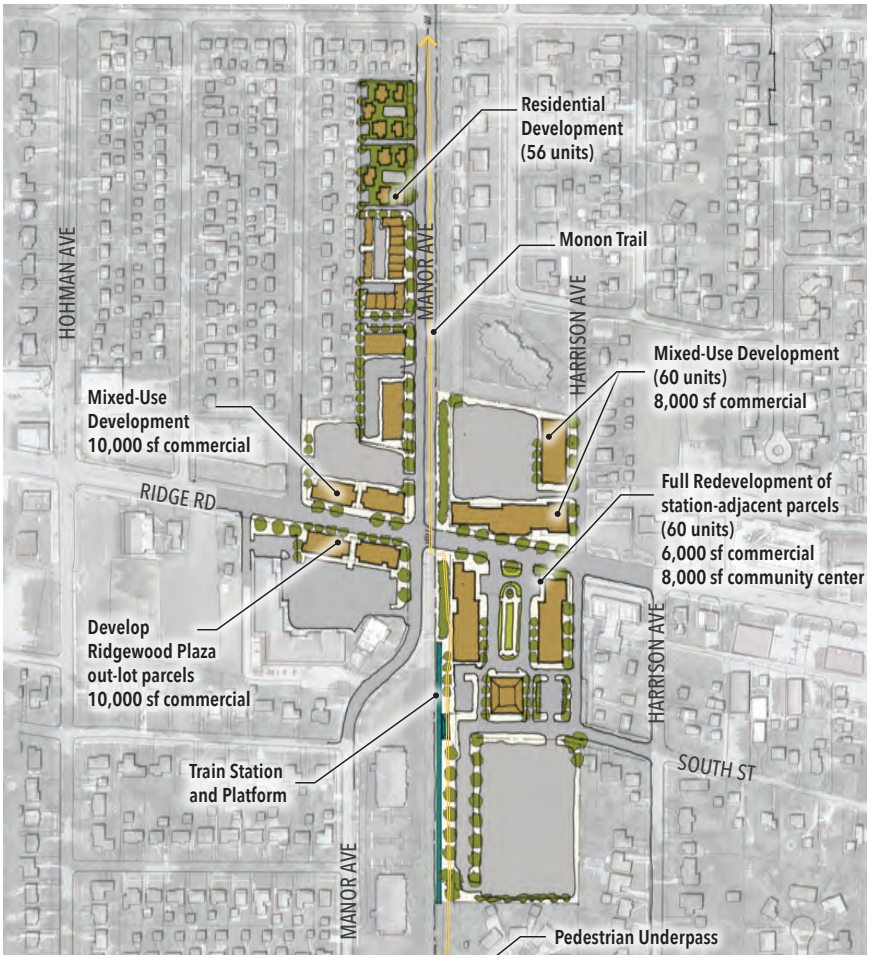
BENEFITS

- New street paralleling tracks provides second point of access
- Redevelopment of Ridgewood Plaza transforms the corner from auto-dominated to walkable
- Townhouses along Manor propose a viable housing type
- Works around the existing KFC
- 10 acres of development

CONSTRAINTS

- Development between Ridge Rd and South St turns its back on Ridge Rd
- Emphasis on townhomes serves only a narrow portion of the TOD market
- New street is too close to tracks to allow certain turns
- Removes existing fountain on Ridge Rd

A conceptual illustration of potential future



03 MARKET SQUARE

BENEFITS

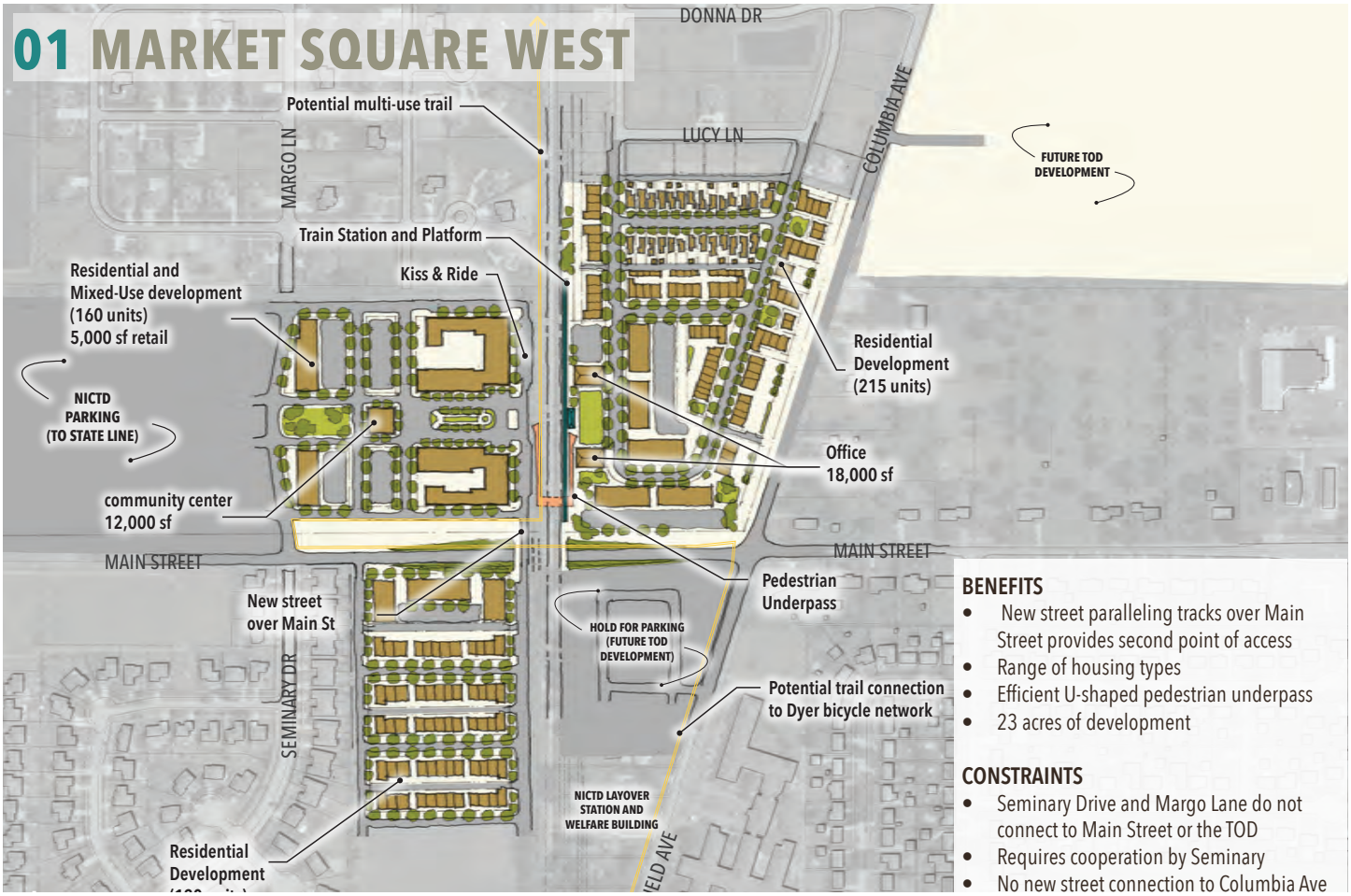
- Harrison extension and market square provides two additional access points
- Two continuous blocks of "Main Street" along Ridge Rd
- Market Square feature creates a clear place
- Diverse housing types along Manor Ave strengthen the Munster housing market
- 8 acres of development

CONSTRAINTS

- Difficult to coordinate all three landowners between Ridge Rd and South St
- Difficult to coordinate landowners on north side of Ridge

A conceptual illustration of potential future

MUNSTER RIDGE ROAD



MUNSTER / DYER MAIN STREET

MUNSTER / DYER MAIN STREET

MUNSTER / DYER MAIN STREET

MOBILITY MEMO

CIRCULATION AND TRANSPORTATION RECOMMENDATIONS

Using the background and analyses described in the Mobility Chapter of this report, multi-modal transportation standards were used and recommendations were developed and incorporated into the illustrative plans for each station area.

Hammond Gateway

In the Hammond Gateway station area, Gostlin Street is envisioned as a welcoming, landscaped boulevard. Gostlin Street will continue to be an arterial road, and the installation of a roundabout at Sheffield Avenue will allow some arterial traffic to be diverted from Hohman Avenue to Sheffield Avenue. The Hammond Gateway TOD vision plan shows the surrounding street grid extending into the station area. Commuter parking and drop-off/pickup will be accommodated on the south side of the tracks accessed via Sheffield Avenue and Wabash Avenue. Additional commuter parking is shown east on Hanover Street. Pedestrians will be able to access both train platforms via a pedestrian tunnel from either side of the tracks and from Sheffield Avenue. The transportation improvements, including last-mile strategies, contemplated in the TOD vision plans are briefly described below:

- Sidewalks should be provided continuously along external streets, providing pedestrian access to the station entrances.
- High-visibility crosswalks should be provided at all intersections.
- A single-lane roundabout at the intersection of Gostlin Street and Sheffield Avenue should be used to calm traffic via lower vehicular speeds and decreased vehicle delays.
- Gostlin Street should be widened to accommodate four 11-foot travel lanes, parking on the north side (between Clark Avenue and Wabash Avenue), and a 12-foot wide raised/planted median. The raised median can act as a pedestrian refuge at intersection locations and can be replaced by left-turn lanes if future demands change.
- Wabash Avenue, Grover Avenue and Dearborn Avenue should all be extended south of Gostlin Street into the station area to connect to the adjacent neighborhood.
- Clark Avenue should terminate at Gostlin Street, with the raised median extending through the intersection, making Clark Avenue a right-in/right-out.
- A new two-way track-adjacent street should extend along the north side of the railroad tracks and would need to intersect Sheffield Avenue with turns restricted to right-in and right-out only to prevent northbound left turns from forming a queue on the train tracks.
- Sheffield Avenue should continue to carry two lanes of traffic (one in each direction) and parking should be accommodated on both sides of the street.
- Hanover Street should be one-way westbound at Sheffield Avenue to avoid turns queuing across the tracks.
- Railroad crossings should be marked per Indiana DOT guidelines for Railroad-Highway Grade Crossings.
- Plan for a traffic signal at Gostlin Street and Grover Avenue for safe pedestrian crossings to

and from the station area. However, it should be noted that preliminary trip generation for proposed land uses and sizes determined that a traffic signal does not appear to be warranted by traffic volumes alone.

South Hammond

Access to and from the South Hammond station area relies on connections via 169th Street, the new Garfield Avenue, 173rd Street, and 175th Street. Though the area's street network is not otherwise shown to extend into the neighborhoods to the east, several other streets are located such that future alignment and extension can be contemplated. Pedestrian connections should be considered even where vehicular traffic will not be allowed a connection (i.e. 169th Street , as currently shown in the TOD vision plan). Commuter parking and the "Kiss-N-Ride" area will be primarily accessed via 173rd Street and the new Garfield Avenue. Parking is shown both north and south of 173rd Street in surface lots and additional on-street parking along the east side of the tracks. Lyman Avenue and the adjacent Monon Trail will be key pedestrian and bicycle connections from the north and south to the train station and platform. The transportation improvements, including last-mile strategies, contemplated in the TOD vision plans are briefly described below:

- Sidewalks should be provided continuously along external streets, providing pedestrian access to the station entrances.
- High-visibility crosswalks should be provided at all intersections.
- Align new access drives on 173rd Street opposite from each other to prevent conflicts between left turning vehicles.
- Mark the railroad crossing along 173rd Street pavement per Indiana DOT guidelines for Railroad-Highway Grade Crossings.
- Generally, two-way traffic will be accommodated in the station area, except one-way southbound traffic is recommended for pick-up/drop-off ("Kiss-N-Ride") on the north-south street just east and south of the station.
- The "Kiss-N-Ride" should also be clearly marked for rideshare pickup and several parking spaces should be designated for waiting vehicles.
- At the intersection of 173rd Street and Lyman Avenue, provide a center left-turn lane that would function as a two-way turn lane for vehicles turning left from 173rd Street to Lyman Avenue and vehicles turning left from 173rd Street into the proposed development. Also, provide 10-foot crosswalks to accommodate Monon Trail users at the intersection.
- A traffic signal may be appropriate at the intersection of 173rd Street and Lyman Avenue due to the proximity of the proposed commuter parking access drives (Garfield Avenue and the parking lot driveway to access parking south of 173rd Street) and the new railroad crossing. By interconnecting the traffic and railroad signals, turning traffic will operate safely across the tracks.

Munster Ridge Road

Ridge Road will continue to be a commercial corridor and Manor Avenue will become the front door of the new train station, as commuter parking will be accessed from Manor Avenue on the west side of the street. Manor Avenue and the adjacent Monon Trail will be key pedestrian and bicycle connections from the north and south to the train station and platform. The transportation improvements, including last-mile strategies, contemplated in the TOD vision plans are briefly described below:

- A raised crosswalk may be appropriate on Manor Avenue between the commuter parking lot and the train platform to formalize and give priority to the frequent pedestrian crossings at that location. Pavement markings on the trail should warn cyclists of a "slow area" in the vicinity of the station due to a pedestrian commuter traffic.
- The intersections of Ridge Road with Manor Avenue and Harrison Avenue should continue to operate under traffic signal control. No new traffic signals are expected to be needed.
- Realign Manor Avenue where it meets Ridge Road by widening the southbound approach on the west side of the street to accommodate a left-turn lane and a shared through/right-turn lane.
- Realign the Monon Trail as it approaches Ridge Road so that it directs trail users to the crosswalk. If existing obstacles such as a traffic signal cabinet or utility poles are not movable, the vehicle stop bar and crosswalk on the east side of the intersection should be pulled back to align the crosswalk with the current ramps. Provide 10-foot wide high-visibility crosswalks to accommodate southbound pedestrians and trail users to cross Ridge Road before crossing the rail tracks to continue along the trail.
- Ensure the traffic signals on Ridge Road have pedestrian countdown timers, ADA compliant ramps, and a leading pedestrian interval to give pedestrians a head start.
- Keep the existing curb-to-curb width of Manor Avenue to maintain slow traffic speeds. Provide an 8-foot curb lane on the east side of the street to accommodate a pick-up/drop-off area in front of the station. The loading area should be designated for rideshare, as well.
- Stripe pavement railroad crossing warnings along Ridge Road per Indiana DOT guidelines for Railroad-Highway Grade Crossings.
- Widen the sidewalk along the north side of Ridge Road to a continuous 16 feet, providing ample separation for pedestrians from vehicular traffic on Ridge Road.

Munster / Dyer Main Street

Access to and from the Munster / Dyer Main Street station area relies on Columbia/Sheffield Avenue, as well as Main Street, which will be extended westward to go under the train tracks. The area's street network is mostly shown in the TOD vision plans as an extension of the existing grid; the exception being Margo Lane, which is not shown extended into the station area due to a resolution passed by the Town of Munster, but is aligned to allow for connection in the future. Key pedestrian connections in the station area are accommodated via an underpass between the east and west sides of the tracks and a pedestrian bridge over Main Street between the train platform and commuter parking on the south side of Main Street. A Monon

Trail overpass is also shown separately on the west side of the tracks, as it is envisioned that the trail could be extended south to cross Sheffield Avenue at Seminary Drive and ultimately connect trail users to the Amtrak station in the Town of Dyer. The transportation improvements, including last-mile strategies, contemplated in the TOD vision plans are briefly described below:

- Sidewalks should be provided continuously along external streets, providing pedestrian access to the station entrances.
- High-visibility crosswalks should be provided at all intersections.
- Provide a 14-foot wide pedestrian bridge on the east side of the tracks to connect to the commuter parking lot at the southwest corner of Main Street and Columbia/Sheffield Avenue.
- If a north-south bike trail is realized west of the train tracks, a 14-foot wide bridge on the west side of the tracks is recommended to allow trail users to cross Main Street without having to navigate through the proposed development and grade changes.
- Extend Main Street westbound as a two-lane roadway with sidewalks on both sides of the street. Sidewalks under the rail tracks viaduct should be at least 10 feet wide to provide a comfortable pedestrian experience.
- The intersection of Main Street and Columbia/Sheffield Avenue will continue to operate under traffic signal control and should provide left-turn lanes and a shared through/right-turn lane at all approaches. Ensure the intersection and traffic signal has sidewalk connections, ADA compliant ramps, high-visibility crosswalks, pedestrian countdown timers, and a leading pedestrian interval to give pedestrians a head start and avoid conflicts with turning vehicles.
- New traffic signals are not expected to be warranted at any of the proposed new streets into the station area according to a preliminary traffic volume study. However, as development occurs on the east side of Columbia/Sheffield Avenue, new streets and access drives should be aligned across the street from one another, and future traffic volumes may warrant future signalization.

Indiana State Police and the Management and Performance Hub (MPH) Accident Summary Tables

Gateway Hammond

Crash Year	Peak Hours	Primary Factor	Injury	Fatality
2017	PM	Failure to Yield Right of Way	No	No
2016	AM	Following Too Closely	No	No
2016	PM	Following Too Closely	No	No
2016	PM	Following Too Closely	No	No
2016	PM	Failure to Yield Right of Way	No	No
2016	PM	Failure to Yield Right of Way	No	No
2015	AM	Unsafe Lane Movement	No	No
2015	AM	Failure to Yield Right of Way	Yes	No
2015	AM	Unsafe Speed	Yes	No
2015	PM	Unsafe Lane Movement	No	No
2015	PM	Following Too Closely	No	No
2015	PM	Following Too Closely	No	No
2015	PM	Following Too Closely	No	No
2015	PM	Following Too Closely	No	No
2015	PM	Following Too Closely	No	No
2015	PM	Improper Lane Usage	No	No
2014	AM	Failure to Yield Right of Way	No	No
2014	PM	Improper Turning	No	No
2013	AM	Following Too Closely	No	No
2013	PM	Following Too Closely	No	No
2012	AM	Failure to Yield Right of Way	No	No
2012	PM	Failure to Yield Right of Way	Yes	No
2012	PM	Disregard Signal/Regulatory Sign	Yes	No
2011	AM	Following Too Closely	No	No
2008	AM	Failure to Yield Right of Way	No	No
2008	AM	Following Too Closely	No	No
2008	PM	Unsafe Speed	Yes	Yes
2007	AM	Overcorrecting/Oversteering	Yes	No
2007	AM	Improper Passing	No	No
2007	AM	Improper Passing	No	No

South Hammond

Crash Year	Peak Hours	Primary Factor	Injury	Fatality
2016	AM	Following Too Closely	No	No
2016	PM	Disregard Signal/Regulatory Sign	No	No
2016	PM	Following Too Closely	No	No
2016	PM	Following Too Closely	No	No
2016	PM	Unsafe Backing	No	No
2013	AM	Following Too Closely	No	No
2013	PM	Following Too Closely	Yes	No
2011	AM	Following Too Closely	Yes	No
2011	AM	Failure to Yield Right of Way	Yes	No
2010	PM	Failure to Yield Right of Way	Yes	No
2010	PM	Pedestrian Action	Yes	No
2009	AM	Speed Too Fast for Weather Conditions	Yes	No

Munster Ridge

Crash Year	Peak Hours	Primary Factor	Injury	Fatality
2017	AM	Left of Center	Yes	No
2017	PM	Improper Passing	No	No
2017	PM	Failure to Yield Right of Way	No	No
2016	PM	Failure to Yield Right of Way	No	No
2016	PM	Following Too Closely	No	No
2015	AM	Failure to Yield Right of Way	Yes	No
2014	AM	Disregard Signal/Regulatory Sign	Yes	No
2014	AM	Disregard Signal/Regulatory Sign	Yes	No
2014	AM	Disregard Signal/Regulatory Sign	Yes	No
2014	AM	Disregard Signal/Regulatory Sign	Yes	No
2014	PM	Following Too Closely	No	No
2013	AM	Following Too Closely	No	No
2013	PM	Unsafe Speed	No	No
2006	AM	Unsafe Speed	No	No
2005	AM	Unsafe Speed	No	No

Munster Dyer

Crash Year	Peak Hours	Primary Factor	Injury	Fatality
2017	PM	Failure to Yield Right of Way	No	No
2017	PM	Following Too Closely	No	No
2017	PM	Following Too Closely	No	No
2016	AM	Distracted Driver	Yes	No
2016	PM	Failure to Yield Right of Way	No	No
2016	PM	Failure to Yield Right of Way	Yes	No
2014	AM	Speed Too Fast for Weather Conditions	No	No
2014	AM	Unsafe Backing	No	No
2014	AM	Following Too Closely	Yes	No
2014	AM	Animal/Object in Roadway	No	No
2014	PM	Following Too Closely	No	No
2014	PM	Following Too Closely	No	No
2014	PM	Following Too Closely	No	No
2013	AM	Following Too Closely	No	No
2012	AM	Unsafe Backing	Yes	No
2012	AM	Following Too Closely	No	No
2012	AM	Following Too Closely	No	No
2012	PM	Following Too Closely	No	No
2010	AM	Following Too Closely	No	No
2010	PM	Following Too Closely	No	No
2009	AM	Left of Center	No	No
2009	AM	Other (Driver)	No	No
2007	AM	Alcohol	No	No
2007	AM	Unsafe Backing	No	No
2007	PM	Following Too Closely	No	No
2006	PM	Following Too Closely	No	No

PRO FORMA RESULTS AND ASSUMPTIONS

REVENUE AND COST ASSUMPTIONS

Residential Uses – Housing prices were established based on a review of local market data, recent sales data provided by the Greater Northwest Indiana Association of Realtors,[1] and interviews with brokers and developers. Recognizing that development adjacent to future robust transit access will benefit from enhanced desirability – especially as the commuter rail project advances – Strategic Economics applied a 20 percent premium to prices compared to recent transactions in areas surrounding the future transit stations. Evidence shows that regional transit access can help to improve the marketability of residential properties, resulting in increased property values.[2]

For the rental housing prototypes, the revenues were calculated based on current market rental rates per square foot for new apartments in comparable communities in Lake County, Indiana and Cook County, Illinois. Similar to residential for-sale development, Strategic Economics applied a 20 percent boost to rents for new construction to recognize the enhanced desirability of transit accessibility and other benefits. The total project value was estimated using an income capitalization approach. This valuation approach first estimates the annual operating income of the apartment prototype, net of operating costs[3] and vacancies; this net operating income (NOI) is then divided by the capitalization rate (cap rate) to derive total project value.

Commercial Uses – For retail and office uses, Strategic Economics based the modified gross rents on those applied in the "Real Estate Feasibility Analysis" report previously prepared by KPMG (April 2017). KPMG derived those rents from current asking rents found in West Lake Corridor communities and surrounding areas. The project values for retail and office uses were estimated using an income capitalization approach (similar to the apartment methodology).

Cost estimates for the prototypes include direct construction costs (e.g., building materials, site prep, labor, and parking), soft costs (e.g., fees, permits, insurance, architecture, engineering, taxes, etc.), financing costs, and developer overhead and profit. Direct building construction cost estimates were roughly based on RS Means 2017[4] for product types that include more durable materials and more appealing exteriors than the most basic construction types. Developers interviewed for this analysis underscored that construction costs are highly variable due to contractor fees, interior/exterior finishes, and other factors, but corroborated the cost estimates used in this analysis. Based on developer input, the pro forma analysis assumed soft costs at 20 percent of hard costs for townhome and single family construction, and 25 percent for multifamily and commercial construction. Developer overhead and profit was estimated at 10 percent of total costs, excluding land; actual profit expectations for any given project will vary depending on specific circumstances and investment objectives.

1 Greater Northwest Indiana Association of Realtors, Inc. Multiple Listing Service, "Residential Property Sales Statistics Hammond, Munster, Dyer." Data provided for units built on or after 2008.

2 See, for example, Strategic Economics, Property Value and Fiscal Benefits of BART. Prepared for Bay Area Rapid Transit (BART), 2014.

3 Operating costs were calculated based on the Institute of Real Estate Management Survey of Apartment Buildings.

4 RSMeans is a national construction cost estimating service.

Table A-1: Revenue Assumptions

Item	Unit	Value
Monthly Rent		
Munster Ridge Road	Per SF*	$1.40
Munster/Dyer Main Street	Per SF	$1.40
Stabilized Vacancy Rate	Percent	5%
Operating Expenses	% Gross Revenue	30%
Capitalization Rate	Percent	6.5%
Capitalized Value	Per SF	$168
Condo		
Munster Ridge Road	Per SF	$132
Munster/Dyer Main Street	Per SF	$126
Townhome		
Munster Ridge Road	Per SF	$144
Munster/Dyer Main Street	Per SF	$139
Small Lot Single Family		
South Hammond	Per SF	$120
Office [1]		
Annual Rent	Per SF	$20.00
Vacancy	Percent	5%
Non-Reimbursable Expenses	Percent	35%
Capitalization Rate	Percent	7.0%
Capitalized Value	Per SF	$171
Retail [1,3]		
Annual Rent		
Hammond Gateway	Per SF	$22.00
Munster Ridge Rd	Per SF	$22.50
Vacancy	Percent	5%
Non-Reimbursable Expenses	Percent	32%
Capitalization Rate	Percent	7.25%
Capitalized Value	Per SF	
Hammond Gateway	Per SF	$191
Munster Ridge Rd	Per SF	$196

1 = Hammond Gateway, 2 = South Hammond, 3 = Munster Ridge Rd, 4 = Munster/Dyer Main Street

**Per SF = Leasable or livable area square feet*

Table A-2: Cost Assumptions

Item	Unit	Value
Direct Costs (a)		
Multifamily Rentals and Condos [3,4]	Per Gross SF	$135
Townhomes [3,4]	Per Gross SF	$94
Small Lot Residential [2]	Per Gross SF	$101
Office [1]	Per Gross SF	$155
Retail [1,3]	Per Gross SF	$150
Tenant Improvements for Office and Retail	Per SF	$20
Parking		
Detached Garage [2]	Two Car Garage	$30,000
Surface [3,4]	Per Gross SF	$18
Split Deck [1]	Per Gross SF	$65
Tuck Under/Attached Garage [3,4]	Two Car Garage	$25,000
Soft Costs (b)		
Small lot single family [2] and townhomes [3,4]	% of hard costs	20%
Rental Apartments [3,4], Condos [3,4], Office [1], and Retail [1,3]	% of hard costs	25%
Developer Overhead and Profit	% of total development costs	10%
Financing		
Amount Financed	% of hard + soft costs	65%
Average outstanding balance	% of amount financed	55%
Construction Loan Fee	% of amount financed	1.50%
Construction Interest (annual)	% of amount financed	6.00%
Term in Years		
Small lot single family [2] and townhomes [3,4]	Years	0.6
Rental Apartments [3,4], Condos [3,4], Office [1], and Retail [1,3]	Years	1.25

Notes:

1 = Hammond Gateway, 2 = South Hammond, 3 = Munster Ridge Rd, 4 = Munster/Dyer Main Street

(a) Direct costs, also known as hard costs, involve the actual physical construction of a development, which include building materials, labor, site preparation, and landscaping.

(b) Soft costs are indirect costs associated with construction of a development, which include architecture and engineering, fees, permits, insurance, and taxes.

Table A-3: Pro Forma Results

Stations	Hammond Gateway	South Hammond	Munster Ridge Road				Munster Dyer Main Street		
Prototypes	**Office and Commercial Mixed Use**	**Small Lot Single Family**	**Condo**	**Rental Apartments**	**Townhomes**	**Rental Apartments, Commercial Mixed-Use**	**Condo**	**Rental Apartments**	**Townhomes**
Project Revenues									
Residential									
Multifamily Rental				$6,216,000		$3,544,800		$6,216,000	
Condos			$4,884,000				$4,662,000		
Townhomes					$288,000				$278,400
Small Lot Residential		$288,000							
Office	$14,862,857								
Retail	$573,517					$1,173,103			
Project Revenues, Subtotal	***$15,436,374***	***$288,000***	***$4,884,000***	***$6,216,000***	***$288,000***	***$4,717,903***	***$4,662,000***	***$6,216,000***	***$278,400***
Project Costs									
Direct Costs									
Residential									
Multifamily Rental				$6,237,000		$3,766,500		$6,237,000	
Condos			$6,237,000				$6,237,000		
Townhomes					$188,000				$188,000
Small Lot Residential		$242,400							
Office	$16,795,800								
Tenant Improvements	$1,734,000								
Retail	$450,000					$900,000			
Tenant Improvements	$60,000					$120,000			
Parking									
Detached Garage		$30,000							
Surface			$513,000	$513,000		$421,200	$513,000	$513,000	
Split Deck	$5,200,000								
Tuck Under/ Attached Garage					$25,000				$25,000
Direct Costs, Subtotal	***$24,239,800***	***$272,400***	***$6,750,000***	***$6,750,000***	***$213,000***	***$5,207,700***	***$6,750,000***	***$6,750,000***	***$213,000***
Indirect Costs									
Soft Costs	$6,059,950	$54,480	$1,687,500	$1,687,500	$42,600	$1,301,925	$1,687,500	$1,687,500	$42,600
Financing Costs	$1,107,835	$7,394	$308,496	$308,496	$5,782	$238,008	$308,496	$308,496	$5,782
Developer Overhead and Profit	$3,140,758	$33,427	$874,600	$874,600	$26,138	$674,763	$874,600	$874,600	$26,138
Indirect Costs, Subtotal	***$10,308,543***	***$95,301***	***$2,870,596***	***$2,870,596***	***$74,520***	***$2,214,696***	***$2,870,596***	***$2,870,596***	***$74,520***
Total Revenues & Costs									
Total Project Revenues	$15,436,374	$288,000	$4,884,000	$6,216,000	$288,000	$4,717,903	$4,662,000	$6,216,000	$278,400
Per SF Building	$138.62	$120.00	$105.71	$134.55	$144.00	$139.17	$100.91	$134.55	$139.20
Total Project Costs	$34,548,343	$367,701	$9,620,596	$9,620,596	$287,520	$7,422,396	$9,620,596	$9,620,596	$287,520
Per SF Building	$310.24	$153.21	$208.24	$208.24	$143.76	$218.95	$208.24	$208.24	$143.76
Residual Land Value									
Residual Land Value	-$19,111,969	-$79,701	-$4,736,596	-$3,404,596	$480	-$2,704,493	-$4,958,596	-$3,404,596	-$9,120
RLV Per SF (Land)	-$256.88	-$19.93	-$60.19	-$43.26	$0.14	-$60.91	-$63.01	-$43.26	-$2.61
Current Market Land Value (KPMG)	$2.50	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25

2017