

Final Report



Warrensville/Van Aken

Intermodal Transit Center Program Plan



Submitted to:



City of
Shaker Heights



Greater Cleveland
Regional Transit Authority

Submitted by:



Baker

BIALOSKY + PARTNERS
ARCHITECTS

Adopted by Shaker Heights City Council June 28, 2010



ACKNOWLEDGEMENTS

The Warrensville/Van Aken Transit Intermodal Transit Center Program Plan is the result of collaboration among the City of Shaker Heights, GCRTA, and Project Team, Steering Committee, and Stakeholder Committee members, as well as residents dedicated to planning for the future of their community. Funding and support for this project was provided by NOACA's Transportation for Livable Communities program. We thank all those who worked with us over the past several months to realize this plan. Members of the Project Team and Steering Committee were:

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CHAPTER 1. PROJECT DEFINITION

The intersection of Warrensville Center Road, Chagrin Boulevard, Van Aken Boulevard and Northfield Road has been the subject of numerous planning efforts in recent years. The intersection itself has long been considered a problem due to long wait times, heavy traffic congestion, and the danger posed by an awkward six-leg configuration. The land area surrounding the intersection is one of two primary commercial areas in the City of Shaker Heights, and was identified in the City's 2000 *Strategic Investment Plan* as a prime opportunity for redevelopment.

The recently completed *Warrensville/Van Aken Transit Oriented Development (TOD) Plan* focused on the land area adjacent to the intersection, and made several recommendations for revitalizing the area, including reconfiguring the intersection by closing Van Aken Boulevard and Northfield Road and extending the Blue Line to an intermodal transit center located in the southeast quadrant of the intersection. Roadway design for the intersection reconfiguration is currently underway. This design project will include the closure of the Van Aken Boulevard-Northfield Road legs of the intersection at Chagrin Boulevard and Warrensville Center Road, simplifying the intersection to a four-way crossing.

The Greater Cleveland Regional Transit Authority (GCRTA), operator of the Blue Line rapid transit line, likewise has long desired to extend the Blue Line to serve the residential, commercial and industrial development south of the present terminus. In 2001, GCRTA completed a Major Investment Study (MIS) investigating an extension of the Blue Line along Northfield Road to Harvard Road and then along Harvard Road, through the Chagrin Highlands Development, to a proposed terminal station near the I-271 Harvard Road interchange. The plan would have facilitated transit oriented development within the Chagrin Highlands and would have provided a much needed park-and-ride lot to serve travelers from the east and south using the many highways (I-271, I-480 East, US 422 and State Route 8) that converge in that area. The recommendations of the MIS were not pursued due to lack of interest on the part of the Chagrin Highlands developers and changing priorities at GCRTA. GCRTA initiated a new study of extending the Blue Line in 2009, and that study, the Blue Line Corridor Extension Project, is ongoing at the time of this writing. The study is investigating potential extensions of the Blue Line down Northfield, Harvard, and Warrensville Center Roads to connect to new terminal stations near highway interchanges south and east of the Warrensville-Van Aken Intersection. The study is expected to be completed in 2011.

In carrying out the Intermodal Transit Center Program Plan, it is the city's intent to:

1. define the required program elements of a transit center, track facilities and bus circulation at this site, and determine the physical area necessary to accommodate the required program elements of a transit center, track facilities and bus circulation at this site; and
2. evaluate, at a conceptual level, the amount of private development that might be accommodated on the intermodal station site, and how that development might be arranged on the site to maximize the site's development potential while complementing the primary transit use of the intermodal transit center.

STATEMENT OF PURPOSE

The stated purpose of the Intermodal Transit Center Program Plan is to further develop the intermodal transit center component identified in the 2008 Warrensville/Van Aken TOD Plan. The conceptual plan for the intermodal transit center focuses on determining how bus circulation and other key components of the intermodal project will fit into the urban context and fabric of the study area.

STUDY AREA

The Warrensville/Van Aken Intermodal Program Plan study area consists of the southeast quadrant of the Warrensville Center Road/Chagrin Boulevard/Van Aken Boulevard intersection. Much of the land area in this quadrant currently lies within the Northfield Road right-of-way, which consists of two two-lane roadways with a center median. Northfield Road is to be closed from Chagrin Boulevard to an undetermined location south of the study area as part of the planned reconfiguration of the intersection. This planned reconfiguration of the intersection will make right-of-way available for the intermodal transit center and for other future development. Other major uses within the study area include the University Hospitals Administration Building and the Tower East office building, two of the city's largest employment centers. The remaining quadrants surrounding the intersection contain a variety of uses, including two strip shopping centers, a gasoline station, the existing Warrensville/Van Aken rapid station and bus transfer area, and a number of retail, office, and residential buildings. The project study area and some of the key buildings are indicated in Figure 1-1.



Figure 1-1: Warrensville-Van Aken Intermodal Transit Center Study Area and Major Buildings

EXISTING CONDITIONS

The existing Warrensville/Van Aken station serves as the terminus of GCRTA's Blue Line Rapid Transit Line, a function it has served since its original construction in 1929, when the then Moreland Rapid Transit Line of the Shaker Rapid was extended from Lynnfield south to Warrensville Center Road and Chagrin Boulevard. The station is located in a reservation between the northbound and southbound lanes of Van Aken Boulevard. Another station stop on the line is located several hundred feet north of the station on the east side of Farnsleigh Road. Adjacent to Van Aken Boulevard on each side of the station are two strip shopping centers, Shaker Shopping Plaza and Van Aken Shopping Center. These were built in the 1950s, and their large parking lots separate the stores from the rapid transit station.

The station has a third storage track for emergency train and intermittent maintenance equipment storage. An electrical substation that serves a significant portion of RTA's Blue and Green Line rail system is also located at the station, along with a comfort station for use by rail and bus operators and other GCRTA staff.



The station serves as major transfer hub for the GCRTA system, with four bus routes originating at or connecting to the Blue Line's terminal station. The GCRTA bus routes that serve the station and their ridership levels are shown below in Table 1-1:

Table 1-1: Routes Serving Warrensville-Van Aken Station, Annual and Average Daily Ridership

Routes	Annual Ridership (2006)	Annual Ridership (2007)	Annual Ridership (2008)	2008 Average Daily Ridership
#5 Chagrin Boulevard	279,919	269,749	273,917	750
#14 Kinsman Road	2,015,571	2,024,851	2,097,315	5,746
#27F Solon	8,621	8,316	14,074	55
#41 Warrensville Center Road	1,277,844	1,259,473	1,488,709	4,079
#67 Blue Line	2,907,740	3,198,883	3,301,890	9,046

The current alignments of these bus routes and the Blue Line rapid transit line are shown in Figure 1-2, below:

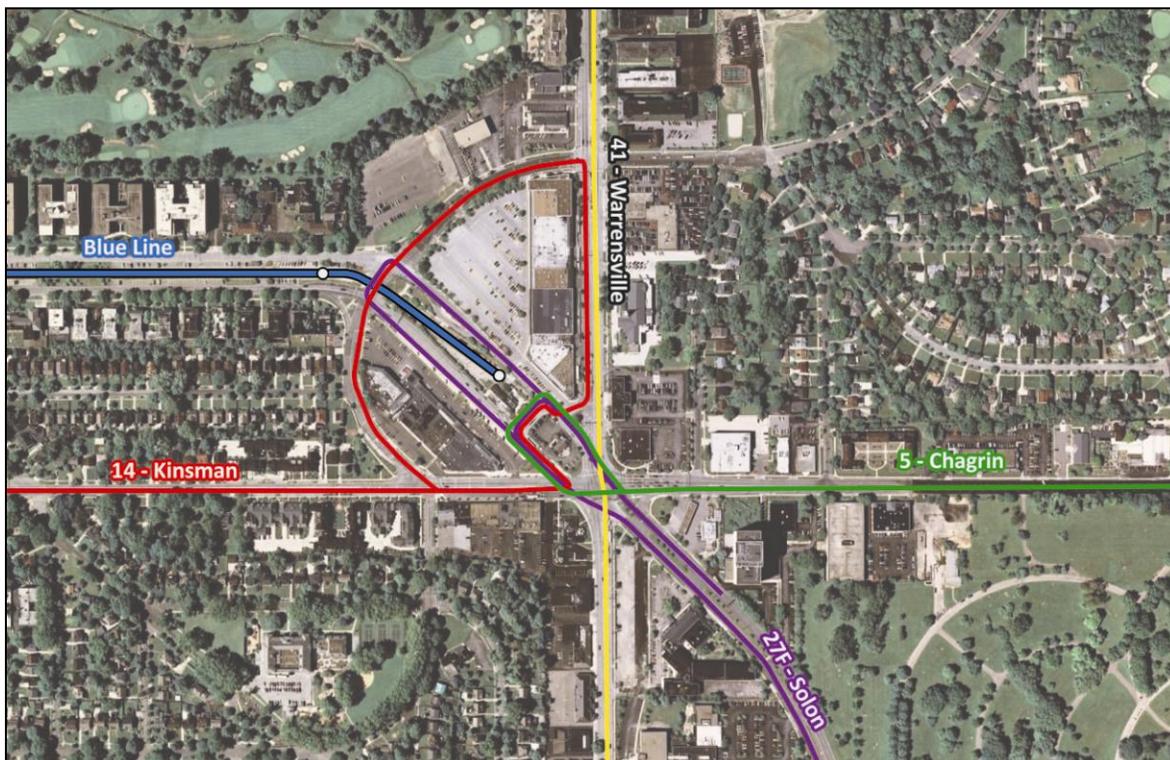


Figure 1-2: Bus and Rail Routes Serving Warrensville-Van Aken Rapid Station



The Warrensville-Van Aken station is one of the highest transfer activity locations in the RTA system, with high numbers of transfers making the intermodal connection from bus to rail, as well as significant bus-to-bus transfer activity. These connections serve bus routes connecting from the south and west, mostly serving lower-income neighborhoods to the south and east of the station site. Three of the bus routes, including the highest ridership route (#14 Kinsman) enter the station, looping through a driveway that cuts between the two sides of Van Aken Boulevard, south of and perpendicular to the rapid tracks. Route 41, which operates on Warrensville Center Road and serves as one of RTA's most important north-south crosstown routes, does not enter the station but drops off and picks up passengers at bus stops nearby along Warrensville Center Road. Route 27F, a peak period-only reverse commute route intended to bring workers to the industrial and commercial areas south of the station, makes a left-hand loop around the station at Farnsleigh Road.

LIVABILITY AND SUSTAINABILITY ISSUES

The goals of the proposed Intermodal Transit Center are consistent with the six "livability principles" cited by the Federal Transit Administration (FTA). These principles are meant to insure that future transit expenditures enhance mobility, development and sustainability in communities across the country.

Provide more transportation choices

A new intermodal transit center in the southeastern quadrant of the Warrensville-Van Aken Intersection is required to address the significant shortcomings of the existing station, in terms of connectivity, ability to facilitate development, and ability to enhance sustainability by promoting RTA transit use. A new station in the southeastern quadrant would provide improved bus-to-bus, bus to rail and pedestrian connectivity to the station, integrating the station into the regional pedestrian and bicycle network.

A new station would provide improved amenities for the mostly lower-income travelers who use the existing station and the bus routes that connect to it, while adding adjacent, safe, clearly marked park-and-ride and passenger dropoff areas that will promote RTA ridership and RTA's efforts to promote sustainability in the region.

Some of the connectivity issues that need to be addressed by replacement of the existing station include the following:

- The current facility requires transit users to cross the travel lanes of Van Aken Boulevard to reach adjacent development. Crosswalks are provided at the intersection, but they



are far from the station platforms. Wait times at the intersection are long, and no barriers force passengers to cross at crosswalks. This leads to passengers crossing Van Aken in an uncontrolled manner that raises safety concerns. No retail or other amenities for passengers are provided within the station (with the exception of some newspaper and soda machines). Passengers must use the adjacent shopping centers across Van Aken Boulevard for shopping or dining. A new station would be integrated into the roadway network, and would take advantage of the reduced scale of the simplified Warrensville-Chagrin Intersection to reduce walk distances and improved pedestrian facilities and amenities. The station also would connect with adjacent bicycle priority corridors and provide improved amenities to bicycle users and an improved bicycle-transit interface.

- The loading and layover point for buses connecting at the station is a simple three lane driveway that buses enter from the northbound and exit to the southbound lane of Van Aken Boulevard. Buses enter and layover passengers in all three lanes, sometimes causing passengers to cross the path of other passing vehicles in order to board their buses. This also creates a less-than-optimal safety situation. The configuration of the existing facility is over-capacity for current (and anticipated future) bus operations. A new facility would have an adequate number of covered, sawtooth bays to allow buses to park safely without endangering passengers, and would minimize and improve the safety of pedestrian-bus crossings.

RTA's mission of promoting transit use and sustainability is hampered by the shortcomings of the existing station.

- No convenient, safe, well-marked and legal park-and-ride lot for transit users is available at the station. This is a significant shortcoming for RTA's last rail station facing a commuting shed that extends more than 30 miles south and east. Parking is available in a city owned lot to the north of the site, north of Farnsleigh Road, but this lot is not well marked and is not conveniently located for transit users, and thus is not well used. A new station could develop an adjacent, safe and convenient park-and-ride lot to promote transit use among area residents commuting to downtown Cleveland and other destination on the rail system.

The existing station has no indoor, climate-controlled waiting area for passengers, who must wait for the rail or bus in the winter cold or summer heat. Shelter space often is inadequate to passenger loads. A new station could provide an indoor waiting area while providing covered walking paths to allow passengers to transfer between the bus and rail and between bus routes out of the rain, sun and snow.



Based on analysis from this study and in the *TOD Plan*, the southeastern quadrant is the only viable location for a new station. Options for relocating the station within the development site in the northwestern quadrant of the intersection would require relocations of the rail line that would be technically difficult; would potentially create a large distance between the bus pickup-dropoff area; and would consume too much of the available, developable land in that area. This issue is further explored in the section on the long-term relocation of the station site in Chapter 4. The existing station was designed to fit between the travel lanes of Van Aken Boulevard, and would be obsolete and inaccessible after the boulevard is abandoned in this area. The *TOD Plan* identified a new development pattern that includes both the current boulevard alignment and some of the station property as part of a new development replacing the current station and the shopping centers on either side of Van Aken. The development of a station on the southeastern quadrant would allow the station to expand its footprint to include all of the circulation elements and amenities of a modern station, while permitting a new station to be better integrated into the surrounding development, including the moderate income residential areas to the south and east of the site. It also would be nearer to the major employment sites in this area, including the Tower East complex and University Hospitals offices. The relocation of the station would promote the development of the area as well as the connectivity and sustainability goals of the project.

The development of the proposed intermodal transit center would facilitate the development of more transportation choices in the Warrensville-Chagrin intersection area, specifically by providing for improved intermodal connections (bus-to-bus, bus-to-rail, and pedestrian and bicycle to transit). Perhaps the most improved intermodal connection that would be facilitated by the new center would be auto-to-transit connections, with a new, safe, adjacent park-and-ride lot and a convenient auto drop-off location. The park-and-ride lot, in particular, would facilitate increased transit use in areas to the south and east of the station, while all of the improvements included in the new center would improve the access to safe, reliable and economical transportation choices, reduce household transportation costs, reduce America's dependence on foreign oil, improve air quality and reduce greenhouse gas emissions.

Promote equitable, affordable housing

The proposed intermodal transit center and the redevelopment that it would facilitate would enhance the housing that surrounds the site, which includes moderately priced owner-occupied and rental housing along Van Aken Boulevard, Chagrin Boulevard and Warrensville Center Road and in nearby neighborhoods. The improved transit connections and amenities, upgraded transit-oriented, mixed-use development, improved parking conditions, and improved pedestrian and bicycle connections would support existing housing in the area while making



conditions more favorable for the development of new, moderately-priced housing as part of the mixed-use development on the existing station site, or as part of new development in nearby areas of Shaker Heights, Warrensville Heights and Beachwood.

Enhance economic competitiveness

A new station would vacate the current site, opening the way to a complete redevelopment of the existing site while facilitating new development integrated into the station on the southeastern quadrant of the intersection. The proposed intermodal transit center would enhance economic competitiveness of Shaker Heights and its surrounding communities by improving access to the downtown Cleveland and University Circle areas for residents of the Shaker Heights, Beachwood and Warrensville Heights areas and for park-and-riders from a larger area. Downtown Cleveland and University Circle are the region's largest and most important employment and educational centers as well as major shopping, social service and entertainment centers for the Cleveland region. Improved transit access to these locations would greatly improve access to employment and educational opportunities and access to other basic needs for the low and moderate-income residents of the areas surrounding the intermodal transit center. The new center likewise would increase access to employees in this region for the many employers in downtown Cleveland, University Circle and nearby areas, further facilitating greater economic activity. The center also would be located closer to the Tower East and University Hospitals office complexes than the existing Warrensville-Van Aken Station, and would provide improved access to these employment centers for travelers to this area from throughout the Cleveland region. The additional mixed-use, transit oriented development that is proposed to be a part of the new center also will provide additional economic development and employment opportunities in the area.

Support existing communities

The proposed intermodal transit center would support existing communities by facilitating redevelopment of the Shaker Heights, Warrensville Heights and Beachwood communities that have been developed for many years. Shaker Heights, where the station is located, and nearby neighborhoods in the City of Cleveland were mostly developed by 1940, while the nearby communities of Warrensville Heights and Beachwood developed between 1940 and 1970. The center would improve access to downtown Cleveland and University Circle, the Cleveland area's primary older employment and development centers, by improving access to the rapid transit system for pedestrians, cyclists and those that access the transit system using automobiles through park-and-ride and drop-off access. The improvements would target federal funds to an existing community (the City of Shaker Heights) to support and increase investment in the

existing Greater Cleveland RTA light rail system. The proposed project would facilitate cooperation between local communities, the regional transit authority, and state and federal funding agencies.

The proposed center would reuse existing, developed land for the purpose of promoting mixed use, transit oriented development. The improvements also would facilitate the revitalization of the land on which the existing Warrensville-Van Aken Station is located and the surrounding land on which two existing, auto-oriented shopping centers, with the anticipated benefit of revitalizing Shaker Heights and its surrounding communities. This redevelopment is proposed to be made in a mixed-use, transit oriented pattern and will be connected to the new transit center through improved pedestrian and bicycle connections. This investment would constitute an accommodation of future growth and redevelopment in the region in a transit oriented and sustainable way, that would reduce energy consumption (both by promoting transit use and by using “green building” and energy-saving techniques in the new buildings that would replace the existing station and development).

The Greater Cleveland RTA’s rapid system is a unique characteristic of the Shaker Heights community and of this neighborhood. The extension of the line to the south side of Chagrin Boulevard extends the amenity of the light rail system to the moderate and lower income Shaker Heights and Warrensville Heights neighborhoods that would be adjacent to the proposed center. The intermodal transit center would promote connectivity from these walkable urban-suburban neighborhoods to the station.

Coordinate policies and leverage investment

The development of the proposed ITC, which is an important goal of both the City of Shaker Heights and Greater Cleveland RTA, has resulted in greater cooperation and coordination, and the lowering of barriers to that cooperation, between the two agencies, and between Shaker Heights, RTA, and other nearby communities including Beachwood and Warrensville Heights. It has also led to increased cooperation between Shaker Heights, RTA and such regional transportation entities as the Ohio Department of Transportation, the Cuyahoga County Engineer’s Office, and NOACA. The project’s further development will require each of these agencies, together with the FTA, to coordinate their activities and contribute their funding to the project. Funding from a variety of state and local sources will be required to leverage the funds contributed by the FTA towards the development of this important project.

Value communities and neighborhoods

The Greater Cleveland RTA’s rapid system is a unique characteristic of the Shaker Heights community and of this neighborhood. Indeed, Cleveland itself is unique among mid-sized, Midwestern cities in having a significant rail transit system. The extension of the line to the south side of Chagrin Boulevard extends the amenity of the light rail system to the moderate and lower income Shaker Heights and Warrensville Heights neighborhoods that would be adjacent to the proposed center. The intermodal transit center would promote connectivity from these walkable urban-suburban neighborhoods to the station, and would promote walking and the use of alternative transit forms in the community.



CHAPTER 2. GOALS AND OBJECTIVES

The planning process for the Warrensville/Van Aken Intermodal Transit Center Program began with setting goals and objectives for the study. Setting goals for the project not only described the project and its desired outcomes, but also provided the basis for developing measurable objectives that could be used to evaluate the various locations, elements and designs that were developed over the course of the study.

The City initiated the process of setting goals and objectives by identifying the desired outcomes and community benefits that would result from the project in its Request for Proposals. Previous plans for the study area were examined to identify community goals which remained vital to the Intermodal Transit Center Program Plan. A final list of project goals and measurable objectives was then developed at a series of Project Group meetings which incorporated the goals of both the City and GCRTA for the intermodal transit facility.

PREVIOUS STUDIES

Previous studies conducted by the City have examined the Warrensville/Van Aken district and the potential for transit oriented development to revitalize this commercial district while providing a safer environment and improving accessibility to transit for all modes. The 2000 *Shaker Heights Strategic Investment Plan* identified Warrensville/Van Aken as an area with potential for redevelopment as a mixed use town center. The 2008 *Warrensville/Van Aken TOD Plan* proposed a number of changes to the area, including closing Van Aken Boulevard and Northfield Road at the intersection, extending the rail line diagonally across the intersection in the former Northfield Road right-of-way, and development of a corresponding intermodal transportation center in the Northfield Road right-of-way on the south side of Chagrin Boulevard.

Many of the goals that were developed as part of these previous studies, and in particular the *Warrensville/Van Aken TOD Plan*, remain relevant to this plan. Goals and objectives from previous studies that were incorporated into the Intermodal Program Plan include:

- Creation of an intermodal transportation center that enhances the transit experience now and accommodates system expansion in the future.
- Evaluating and addressing vehicular access and parking needs.
- Improving pedestrian and bicycle connections between the station and the mix of uses in the surrounding area
- Increasing the visibility of transit to positively influence the residential and business location decision-making process.



In addition, the City outlined its desired outcomes for the Intermodal Program Plan and resulting community benefits in the project's Request for Proposals:

Desired Outcomes and Community Benefits

- Economic development
- Increased safety
- Increased transit use/service
- Improved transportation access
- Shared parking facilities
- Construction of LEED-certified facility

GOALS AND OBJECTIVES

The following list of project goals and objectives was developed at a series of Project Group meetings with City of Shaker Heights and GCRTA Staff, stakeholders and members of the public. These goals and objectives were referenced throughout the project to evaluate the various locations, configurations, and designs that were proposed for the intermodal transit facility over the course of the study.

Goal #1: Improve transportation access and circulation in the Warrensville/Van Aken commercial district.

- Identify a location for the intermodal transit station that facilitates improved traffic circulation and reconfiguration of the intersection.
- Improve bus circulation and connectivity at the transit station.
- Improve bus-rail connectivity.
- Improve pedestrian access.
- Improve bicycle access and incorporate the recommendations of NOACA's *Regional Bicycle Transportation Plan*.
- Improve connectivity of the transit station to adjacent development.



Goal #2: Support and enhance the City's economic development and smart growth and sustainability goals.

- Identify a location for the transit station that vacates the existing station site to facilitate redevelopment of the TOD Plan study area (the northwestern quadrant of the Chagrin-Warrensville intersection)
- Develop a conceptual plan for an intermodal transit station that incorporates the elements of transit oriented development and smart growth, including:
 - Transit supportive development densities
 - Complementary mix of uses
 - Transit, pedestrian, and bicycle access that is equal to or better than auto access.
- Develop a conceptual plan for a transit station that meets the sustainability goals of the City and RTA, including LEED design elements.

Goal #3: Improve RTA's transit infrastructure to attract new ridership.

- Provide a plan for a high quality facility that will enhance RTA's image in the community and region
- Develop a facility that complements the surrounding development and is built to the same standards of quality
- Provide improved amenities for RTA patrons using the site
- Increase the availability and improve the quality of parking for RTA park-and-ride patrons at the site
- Develop a station plan that minimizes development and maintenance costs while maintaining a high level of quality
- Develop a plan for a station that enhances RTA operations in the area.
- Improve or maintain the quality of rail operations at the site.
- Provide improved bus layover and parking facilities at the site.



CHAPTER 3. PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT PROGRAM

Effective public engagement and outreach are essential to building consensus and delivering a successful plan. The public involvement program for this plan focused on developing and implementing an inclusive communications program – one that was sensitive to community concerns and promoted the benefits that the project will bring to the area. The program was designed to provide the City of Shaker Heights and GCRTA with targeted and practical outreach geared to the successful completion of the study.

The public involvement program supported the project by:

- Establishing and maintaining open and ongoing dialogue between the City of Shaker Heights, GCRTA, the Steering Committee, stakeholders and the public regarding issues related to the study.
- Creating a climate of trust where information and concerns could be exchanged and common goals achieved.
- Involving parties with input in the decision making process during plan development, to provide a clear understanding of the process and level of detail of the plan development.
- Reaching consensus on the components of the plan and the three levels of TOD.

The goal of the public involvement program was to optimize the participation of affected parties, with a focus on meetings with agency and community representatives. The public engagement process consisted of a series of meetings and work sessions with Shaker Heights and GCRTA staff, the Steering Committee, project stakeholders, and the general public. The involvement of various parties at all stages enabled them to provide critical input into the development of the plan as it was produced.

STATION, ROADWAY, AND TRACK

A critical component of the public involvement program was integrating engagement activities with the two other projects related to the Warrensville/Van Aken intersection that were being conducted concurrent to the Intermodal Program Plan. To facilitate synthesis of the three projects, each was given a shorthand name to be used throughout the public involvement process. The Intermodal Program Plan was referred to as the *Station*. *Roadway* refers to the engineering design project that consists of reconfiguring the existing six-legged Warrensville Center Road/Chagrin Boulevard/Van Aken Boulevard-Northfield Road intersection into a four-



leg intersection by removing/relocating Van Aken and Northfield and other related modifications. *Track* refers to the study assessing the long term extension of the Blue Line to connect with the regional freeway network in the southeast part of Cuyahoga County. The entirety of this project's study area is contained within the *Roadway* and *Track* study areas.

Due to the interconnected nature of the *Station*, *Roadway*, and *Track* projects, many of the public involvement activities were conducted jointly to facilitate a collaborative process that addressed the needs of all three projects and avoided potential development of conflicting concepts. Joint project meetings were held throughout the planning process to review the progress of the three projects and to ensure that project findings were presented in a seamless fashion to the public. The Steering Committee and stakeholders were also the same for all three projects.

The Project Group consisted of the City of Shaker Heights, GCRTA, and the Parsons Brinckerhoff consultant team. The Steering Committee consisted of agencies and organizations with a vested interest in the project, with representatives from the City of Shaker Heights, GCRTA, the City of Warrensville Heights, the Village of Highland Hills, the Cuyahoga County Engineer's Office, NOACA, ODOT, and the consultant team members. The stakeholder group included representatives from businesses and neighborhoods in and around the project area.

PROJECT MEETINGS

Project Group Kick-Off Meeting

July 7, 2009

At the kick-off meeting the project goals and objectives were developed, the project schedule was established, and data needs were identified. The Project Group agreed that the intent and purpose of the Intermodal Program Plan was to further develop, graphically, the intermodal project component identified in the 2008 Warrensville/Van Aken Transit Oriented Development Plan, with emphasis on determining how key components of the intermodal project will fit into the urban context and fabric in the area.

Project Development Work Session and Meetings (Project Group, Steering Committee and Stakeholders)

July 29-30, 2009

Initial concepts for the station area plan were identified and refined at this two-day meeting. The consultant team met first to develop concepts for the rail extension and bus circulation. The three different concepts were reviewed with the Project Group, the Steering Committee and the stakeholders. Specific issues that were addressed included: bus considerations (routes, access, circulation, and travel patterns), bus/rail transfer, station location, minimizing



transit center footprint, transit rider accommodations (bicycle and pedestrian access, circulation, facilities, and amenities), parking, kiss-and-ride, track configuration, station visibility, site circulation, acoustics, sustainability, substation, bus and vehicular access, design priorities, and formal adoption of the project goals. At the conclusion of the two-day session, the preferred conceptual layout was agreed upon and would subsequently be used to develop the three levels of TOD adjacent to the Intermodal Transit Center.

Project Group Meeting

November 20, 2009

The Project Group reviewed and refined the draft concept plans for the station location, bus circulation and program spaces. This was followed by a discussion of the next steps (parking plan, bicycle and pedestrian plan) and upcoming meeting dates and milestones.

Project Group Meeting

(Combined Projects – Station, Roadway and Track)

December 10, 2009

The purpose of this meeting of the combined project teams was to plan for the January 21, 2010 public meeting to be held in Shaker Heights. Additionally, areas of project overlap were reviewed and discussed.

Project Group Meeting

January 12, 2010

The Project Group reviewed the station plans focusing on accommodations, facilities, and layout of the parking, bicycle and pedestrian plans. Parking demand information and parking strategies were reviewed. The Group also discussed concepts for two levels of TOD, and in particular, how they accommodated pedestrians and provided access to and from the Intermodal Transit Center.

Steering Committee Meeting

(Combined Projects – Station, Roadway and Track)

January 14, 2010

The purpose of this joint project meeting was to prepare for the combined projects public meeting on January 21, 2010. Each project team reviewed their respective projects and draft presentations.

**Steering Committee and Stakeholder Meeting
 (Combined Projects – Station, Roadway and Track)**

January 19, 2010

This meeting with the Steering Committee and stakeholders for the combined projects consisted of a formal presentation of the materials and information to be presented at the upcoming public meeting. Comments from the meeting participants were incorporated and the presentations were modified accordingly.

**Public Meeting
 (Combined Projects – Station, Roadway and Track)**

January 21, 2010

Mayor Earl Leiken of Shaker Heights welcomed the estimated 120 attendees to the public meeting followed by a presentation of background information on the three projects by Joyce Braverman, the Shaker Heights Planning Director. Project team presentations were then given. After the formal presentation, meeting participants were invited to talk with the project teams in greater detail at the three stations located throughout the room. Input, ideas and feedback were solicited and subsequently incorporated into the planning process for the three projects. Written comments from meeting participants are included in Appendix F.

Project Group Meeting

February 22, 2010

The project group met to review and incorporate the comments of the public meeting into the plan, and to discuss the draft cost estimate, the project documentation to be provided in the report, and funding opportunities to move the project into the next phase.



Figure 3-1: Public Meeting, January 21, 2010



CHAPTER 4. INTERMODAL TRANSIT CENTER DESIGN CONCEPTS

The design process for the Intermodal Transit Center began with consideration of the project goals and objectives and a design space program, the development of which began at the first project group meeting and continued with input from the consultant team and GCRTA experts based on industry best practices, GCRTA's past practice and institutional preferences, and the consultant team's and GCRTA's past experience in designing and constructing transit facilities. Then, following the design process through the series of meetings described in the previous chapter, design concepts were gradually refined over the course of the project through interaction with the project group, Steering Committee, stakeholders and interaction with members of the public. The result is a conceptual design that will significantly improve amenities for transit passengers, will improve the convenience of bus-to-bus and bus-to-rail connections, improve the safety of pedestrian and bicycle connectivity, provide adequate parking and park-and-ride opportunities, and offer the potential for a significant transit oriented development.

DESIGN CONCEPTS

Based on discussions with the City of Shaker Heights and GCRTA, three design concepts were developed for the intermodal transit center plan:

- A stand-alone intermodal transit center station located on the southeast quadrant of the Warrensville-Chagrin intersection, in the current Northfield Road right-of-way. The station consists of the rail terminal, adjacent bus parking and transfer interface, a "kiss-and-ride" and auto drop-off interface. Rail infrastructure includes relocation of the rail tracks from Farnsleigh through the existing station area, extension of track, signals and overhead catenary wire from the existing station across the Warrensville-Chagrin intersection through the new station to a track wye south of the new station, and relocation of the existing substation to the site of the new station. Minimal surface parking also was provided on the site.
- A second concept in which the station is integrated in a transit oriented development surrounding it on the southeastern quadrant of the Warrensville-Chagrin intersection.
- A third concept that adds additional development and a parking structure to be shared between the transit station, which would use it to provide park-and-ride spaces during daytime business hours, and the adjacent development.



INTERMODAL TRANSIT CENTER SPACE PROGRAM

The space program is divided into interior space (the Intermodal Transit Center Building) and exterior spaces (exterior passenger waiting areas, bus bays, rail and bus platforms, and rail and bus operating facilities and equipment). The space allocation program for the intermodal transit center is detailed in Appendix A of this report.

The interior space is divided into three sections: an interior passenger waiting area, suitable for approximately 20 transit patrons, with an information and security desk for RTA employees; a private space for RTA employees, including a supervisor's room, driver's break room, and a staff toilet room; and storage and service areas.

The public exterior spaces consist of seven bus bays, five configured for standard 40 foot coaches and two configured for 60 foot articulated coaches similar to those in use on the Health Line Bus Rapid Transit Line (these bays for 60 foot vehicles may also be used for 40 foot vehicles). Exterior seating is available for 56 passengers. All bus and rail platforms and boarding areas are under canopies to protect the passengers from the weather. Bicycle racks and a kiss-and-ride (auto drop-off) are included in the facility.

Private exterior space includes parking for GCRTA maintenance and other staff, the rail storage tracks and crossovers and the electrical substation, which would be relocated from its present location to the site of the Intermodal Transit Center. Space also would be provided on the site for the storage of trash and recycling.



Table 4-1: Intermodal Transit Center Space Program Summary

INTERIOR SPACE ELEMENTS	EXTERIOR SPACE ELEMENTS
<p>PUBLIC</p> <ul style="list-style-type: none"> • Vestibule • Waiting/Seating Area • Information Area/Security Desk <p>PRIVATE</p> <ul style="list-style-type: none"> • Supervisor’s Room • Driver’s Break Room • Staff Toilet Room <p>SERVICE</p> <ul style="list-style-type: none"> • Mechanical Room/AC & DHW • Electrical/IT Server & Telephone Room • Storage Area 	<p>PUBLIC</p> <ul style="list-style-type: none"> • Bus Bays • Transit Center Seating • Transit Platform & Platform Seating • Pedestrian, Building, and Transit Canopies • Kiss & Ride/Taxi Stand • Bicycle Racks <p>PRIVATE</p> <ul style="list-style-type: none"> • Facility Maintenance Parking • Rail Storage Tracks • Rail Cross Over(s) • Electrical Substation <p>SERVICE</p> <ul style="list-style-type: none"> • Trash and Recycling Storage

INTERMODAL TRANSIT CENTER AND TRANSIT ORIENTED DEVELOPMENT PLANS

Based on the space allocation program, the consultant team developed a series of conceptual plans for the intermodal transit center and the associated TOD and parking at the three development levels (Station Plan, Development Level 2 and Development Level 3). The plans were refined through several iterations based on input from the project team, other City of Shaker Heights and GCRTA Staff, the project Steering Committee, stakeholders, and members of the public. The final plans for each of the three development levels are shown in Figures 4-1 through 4-3 and summarized in Table 4-2.

The plans for the intermodal transfer center are planning-level conceptual designs. Environmental clearance and further engineering and architectural development will be required prior to construction. The TOD plans are also conceptual and are based on the

development concepts first generated as part of the *Warrensville-Van Aken TOD Plan*. It is important to recall that the private development elements of the plan are dependent on the participation of a private developer, who will work with GCRTA and the City of Shaker Heights to further refine the development plan for the station area.

Table 4-2: Summary of Development Levels

Development Level	Development Summary
Station Plan	Intermodal Transit Center Two 60' bus bays and five 40' bus bays 288 surface parking spaces
Level 2	Intermodal Transit Center Two 60' bus bays and five 40' bus bays 40,000 sq. ft. retail space (Buildings A & B) 110,000 sq. ft. office space (Buildings A, B, C, & D) 210 surface parking spaces
Level 3	Intermodal Transit Center Two 60' bus bays and five 40' bus bays 100,000 sq. ft. retail space (Buildings A, C, & D) 215,000 sq. ft. office space (Buildings A, B, C, D & F) 489 parking spaces (garage and surface parking)

Station Plan

The station plan (Figure 4-1) indicates the location of the new station and intermodal transit center in the current Northfield Road right-of-way. Figure 4-4 shows a close-up view of the station area, and Figure 4-5 shows a rendering of the ITC site. Elevations of the transit center building are included in Appendix B. The rail line extends southeast diagonally across the Warrensville Center Road-Chagrin Road intersection and through the new station. Outside platforms with canopies and seating are situated on either side of the tracks, which end in a wye track to allow trains to be stored and turned. The substation is also relocated to this southern area of the site. Buses queue on the outsides of the rail platforms on both sides of the tracks to provide the closest possible connection between the rail line and bus routes. Three bus bays (two bays for 60 foot articulated buses) are located on the north-eastern side of the track, while four bays are on the south-western side, where the bus turn is also located. Buses circulate through the bus turning area in the counter-clockwise direction and drop off and pick up passengers to the outside of the loop. The loop provides adequate space for bus layovers and passing within the loop. The Intermodal Transit Center building is located in the



center of the bus turning area and is connected to the rail and bus platforms by a marked walkway.

The primary bus access (the South Access Road) is located along the eastern side of Warrensville Center Road approximately 1/8th of a mile south of the Warrensville-Chagrin intersection. Both inbound and outbound bus access is provided at this location; auto access is also permitted in this location to access the parking and kiss-and-ride access points. The parking areas, with approximately 288 spaces, would provide parking for both GCRTA employees that need to access the site and for park-and-ride use. The parking areas are located to the west of the station building in a reconfiguration of an existing parking lot along Warrensville Center Road, the kiss-and-ride drop-off area, and additional parking to the northeast of the station across the tracks. Bus and auto traffic travel patterns are separate. Autos only may access the parking areas west of the station and the access to the kiss-and-ride area, while buses only may access the bus loop to the west of the station platforms surrounding the ITC building. Bus and auto access in both directions is also available from Northfield Road south of the station. Bus access (inbound only) also is provided in the southeastern corner of the Warrensville-Chagrin intersection, following the former alignment of Northfield Road. This roadway is also open to allow auto and truck access to the Tower East loading bays and ground level retail (currently occupied by a restaurant). Access is available in both directions from Northfield Road north to the Tower East loading bays.

Development Level 2

Development Level 2 adds to the station plan a significant level of transit oriented development that wraps around the intermodal transit center along Chagrin Boulevard and Warrensville Center Road. The plan for this concept is shown in Figure 4-2.

The plan proposes two new two story buildings (buildings A and B) consisting of retail at ground level with office above, one facing Chagrin Boulevard, the other facing Warrensville Center Road, flanking the rail line at the southeastern quadrant of the intersection. Two additional four story buildings (Buildings C and D) consisting of office space would be located along Warrensville Center Road west of the ITC. Altogether the development is proposed to contain about 40,000 square feet of retail space and about 110,000 square feet of office space. Parking in the lot along Warrensville Center Road would be truncated, reduced to about 210 spaces, with shared parking in the western lot and a smaller number of parking spaces located near the kiss-and-ride lot for station use. There are opportunities for shared parking with the TOD. Refer to Chapter 5 for more information on parking. The eastern access roadway that ran parallel to the rail line in the Station Plan would be altered to allow the location of Building A.



Development Level 3

Development Level 3 is a reconfiguration of Development Level 2, with additional development and a parking structure added. The plan for this concept is shown in Figure 4-3, and renderings of the ITC and proposed development are shown in Figures 4-5 and 4-6.

The transit oriented development proposed under this scenario features four retail office buildings and a parking garage wrapping around the site along Chagrin Boulevard and Warrensville Center Road and spanning the southeastern corner of the intersection. Buildings A, C and D would contain two stories of retail space, oriented to both the interior (ITC) and exterior (street side) of the site, with 3 stories of office space above, for a total of five stories of space. Building F, which has no frontage on either Warrensville or Chagrin, would have five stories of office space. Building B would place three stories of office space above an underpass through which light rail trains and pedestrians could pass (see the rendering in Figure 4-7). The five buildings together would contain about 100,000 square feet of retail space (half of it on the second story) and 215,000 square feet of office space. The five story parking garage and on-site surface lots would contain approximately 489 parking spaces, providing parking for use by the retail, office and station customers. Access to the site would be similar to Development Level 2, with access from the east modified from the stand-alone station plan to accommodate the development along Chagrin Boulevard.

Warrensville/Van Aken Intermodal Transit Center Program Plan

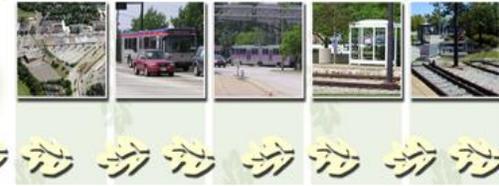


Figure 4-1: Conceptual Station Plan



Warrensville/Van Aken Intermodal Transit Center Program Plan

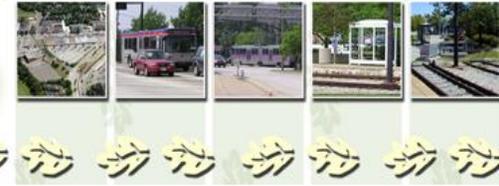
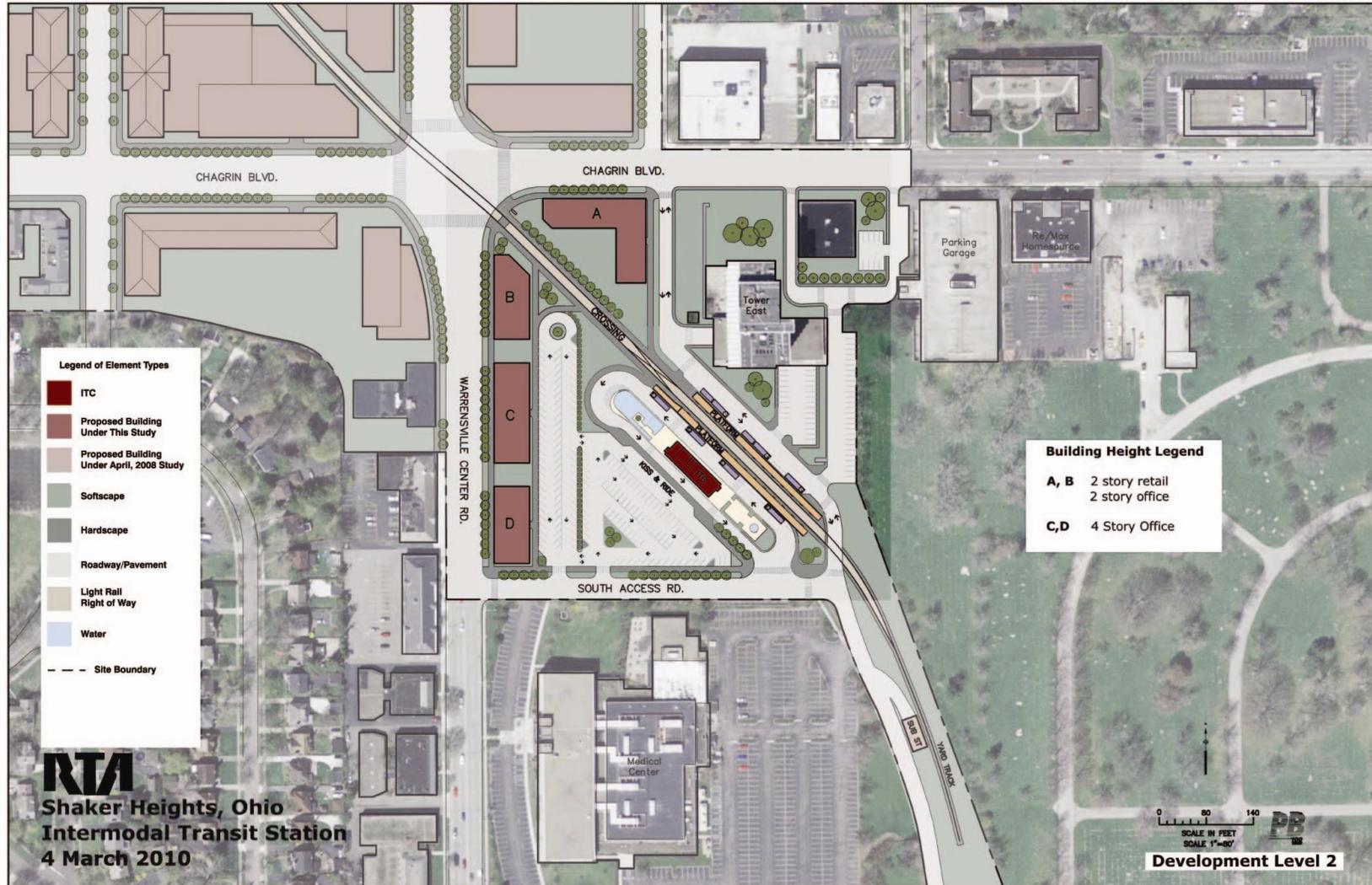


Figure 4-2: Development Level 2 Proposed Site Plan Concept



Warrensville/Van Aken Intermodal Transit Center Program Plan

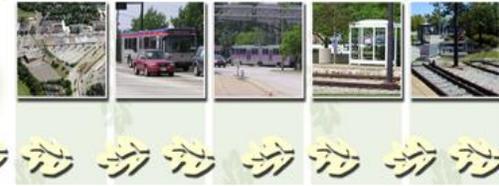
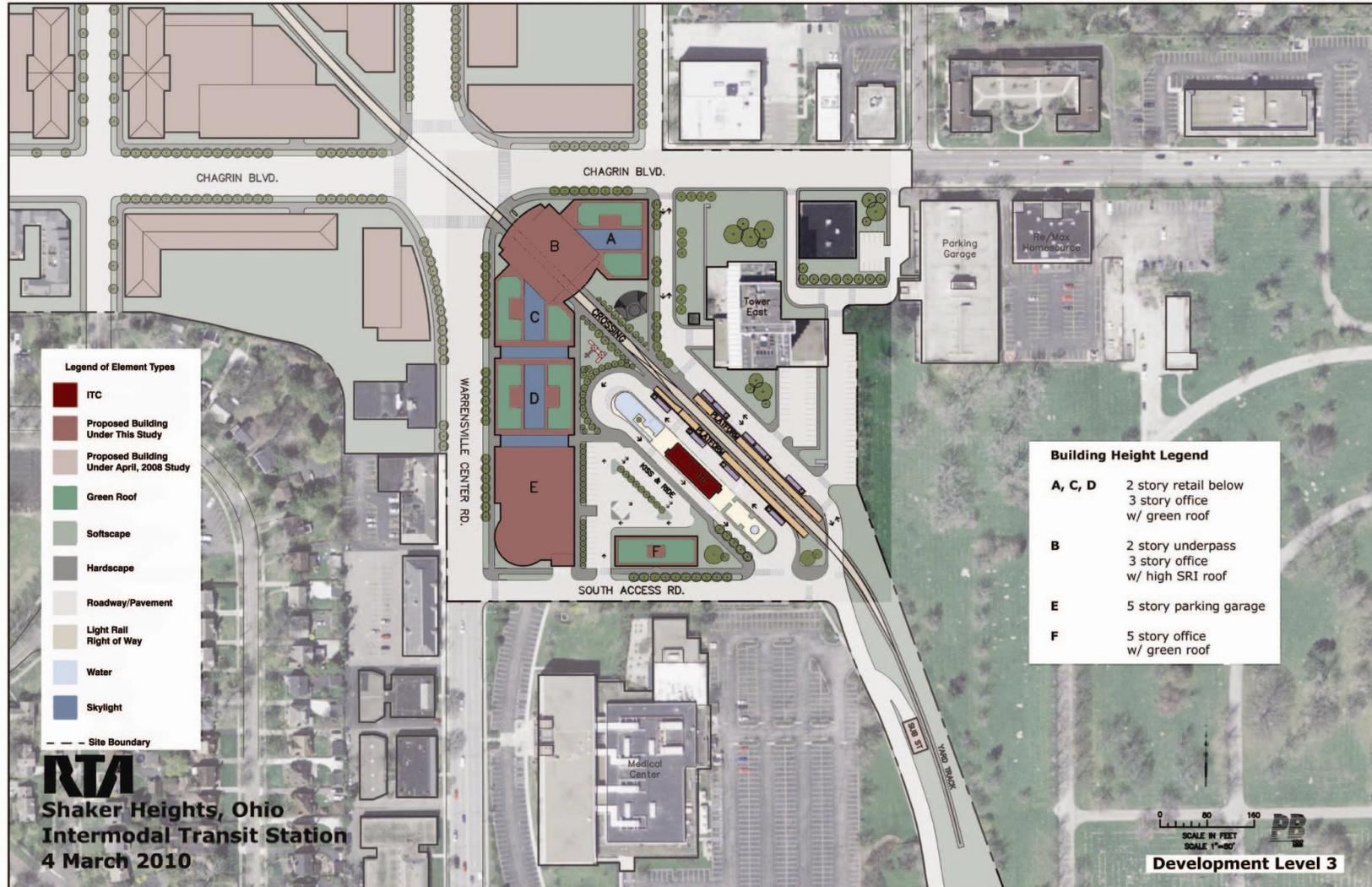


Figure 4-3: Development Level 3 Proposed Site Plan Concept



Warrensville/Van Aken Intermodal Transit Center Program Plan



Figure 4-4: Detail of Station Plan Concept



Warrensville/Van Aken Intermodal Transit Center Program Plan



Figure 4-5: Intermodal Transit Center Conceptual Rendering

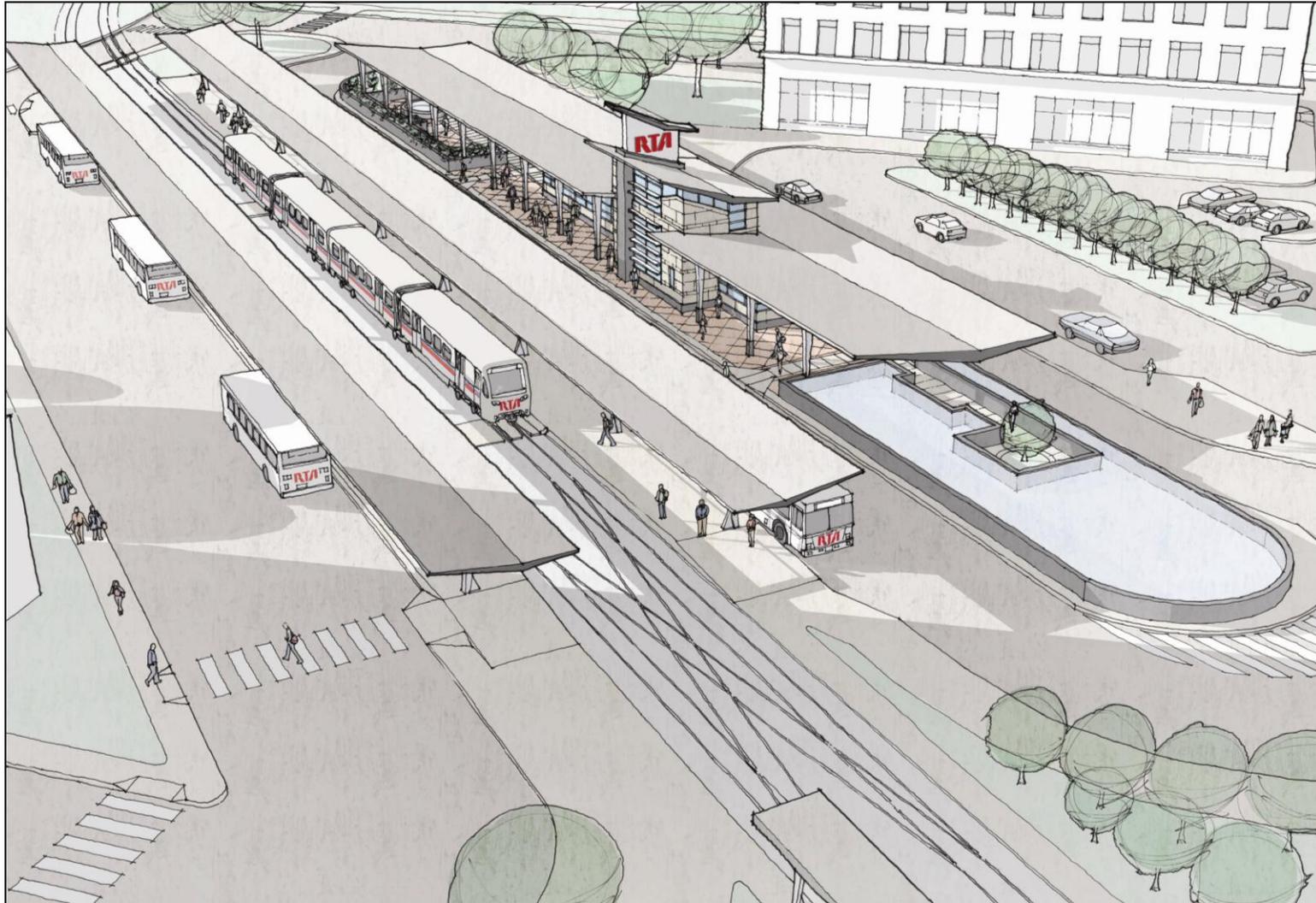




Figure 4-6: TOD Development and Intermodal Transit Center Concept, Development Level 3

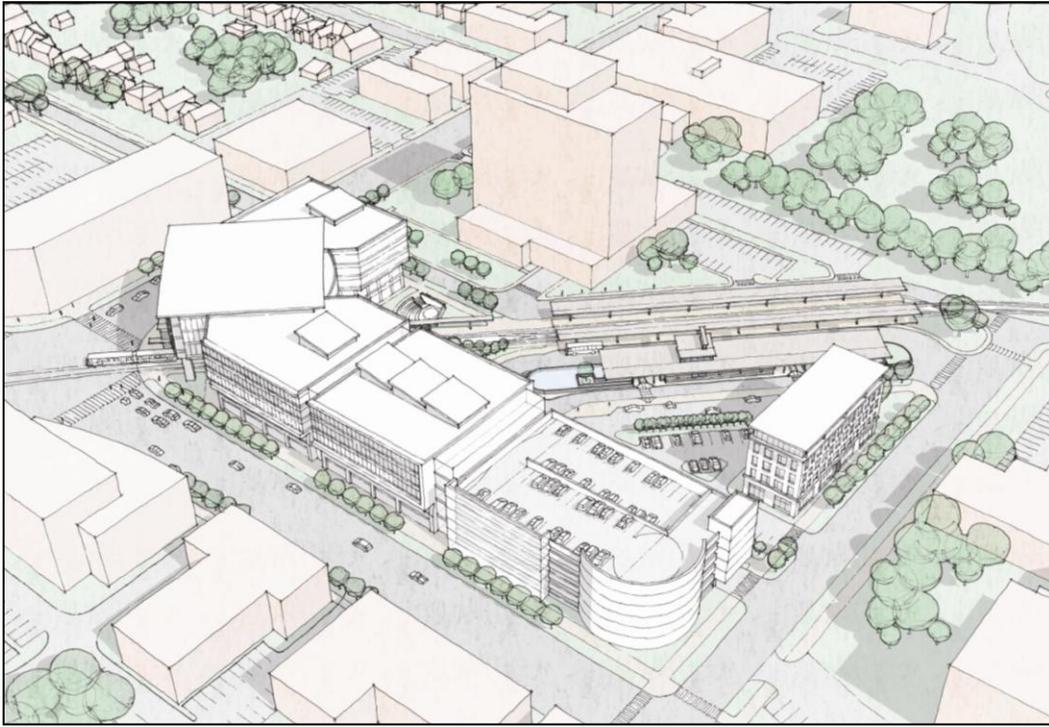


Figure 4-7: TOD Development and Intermodal Transit Center Concept, Development Level 3





RAIL ALIGNMENT EXTENSION

The planned Shaker Heights Intermodal Transit Station would require extension of the rail alignment, including signal, overhead catenary and electrical generation, diagonally across Chagrin-Warrensville Intersection south along the alignment of Northfield Road. Several operational parameters influenced the design of the station. In particular, this is an end-of-the line station with specific requirements associated with that function. Those include:

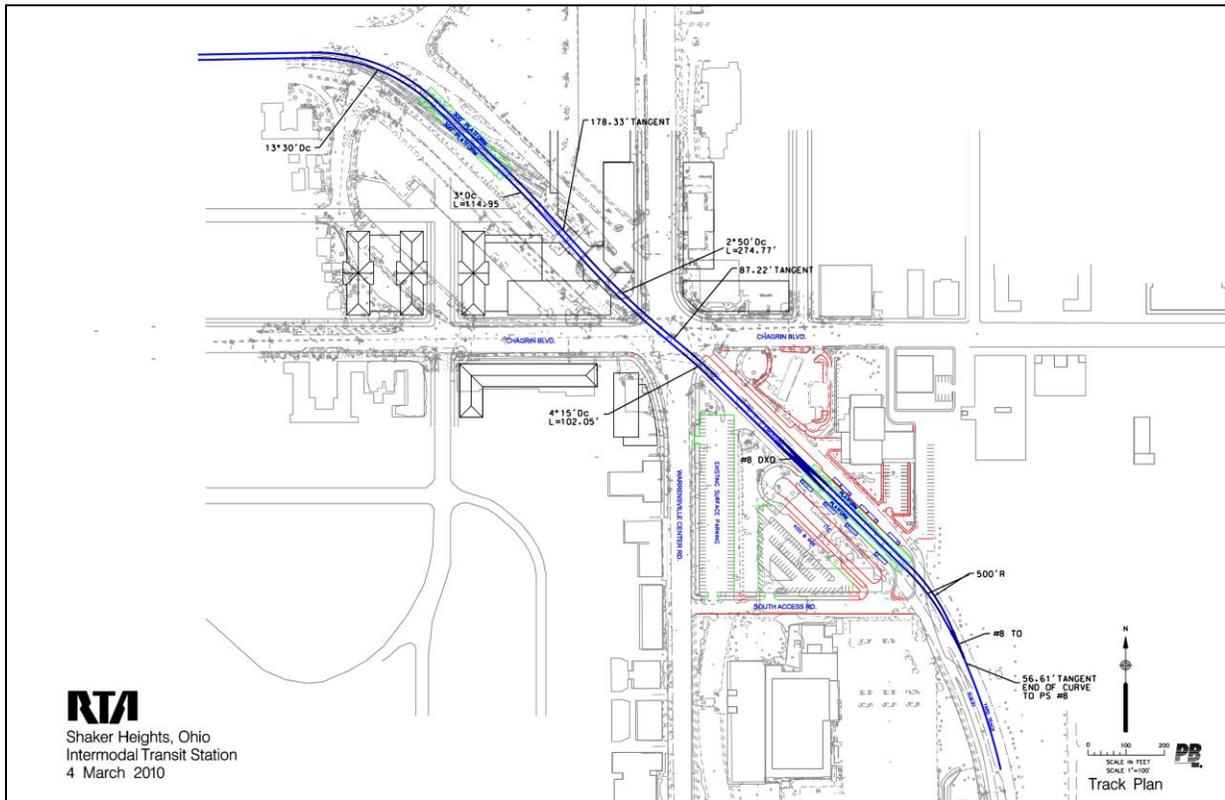
- The ability for trains to cross-over from one track to another to return to downtown. The cross-over must be immediately before the station to allow trains to berth at either platform. The cross-over must be configured to be a push-button, spring switch operation similar to the existing at Warrensville or the South Harbor end-of-the line station.
- The ability to temporarily store a malfunctioning train car or work equipment with a yard track. This track can either be adjacent to the station, as it is currently, or as a tail track after the station, like South Harbor.

To use the station, a train operator will need to stop and interface with the push button control to select which platform to use. This means that the operator must have visual contact with the station at the cross-over location. Given the proximity of the intersection, the cross-over must be placed far enough removed to allow for the train to clear the signal interlocking prior to the cross-over to avoid blocking the intersection or causing delays with restoring automobile traffic movements. With the rush hour headways, it is probable that two trains will cross at the intersection, requiring that the design allow for the clearance on both tracks.

A diagram of the proposed rail infrastructure improvements is shown in Figure 4-8. The new rail alignment would tie into the existing two-track system near Van Aken Boulevard west of the Farnsleigh Road intersection and would follow the existing roadway right-of-way in a southeasterly direction, crossing at the intersection of Chagrin Blvd and Warrensville Center Road. This would require a slight realignment of the rail lines from just north of Farnsleigh Road, meaning that all rail infrastructure, from the north side of Farnsleigh Road south, would require realignment or replacement. The rail line would continue along the right-of-way where the planned Intermodal Transit Station will be located and then turn in a southerly direction near the intersection of the South Access Road and Northfield Road, where it will wye into a single track and run parallel to and east of Northfield Rd.



Figure 4-8: Proposed Conceptual Rail Infrastructure Improvements



The existing storage tracks east of Farnsleigh would be removed and the existing tracks realigned over Farnsleigh to follow the existing Van Aken right-of-way. The proposed new alignment would be a double-track arrangement with a series of reversing movements which would follow the existing Northfield Road right-of-way and meet GCRTA Design Criteria requirements for rail infrastructure. The existing crossover just south of Farnsleigh would be removed, to be replaced by a standard No. 8 Double-Crossover located at the northwest end of the planned Intermodal Transit Station to allow for changing tracks for reversing directional movements. There will also be a standard No. 8 turnout at the southeast end of the line where the two-track alignment merges into a one track storage section that will lead to a yard facility.

The minimum radius along the alignment will have 500' radius curves that will be along the 2-track configuration southeast of the Intermodal Station where it changes to the single track arrangement. The reversing movements along the Northfield right-of-way will have sufficient tangent between the curves to meet GCRTA requirements.

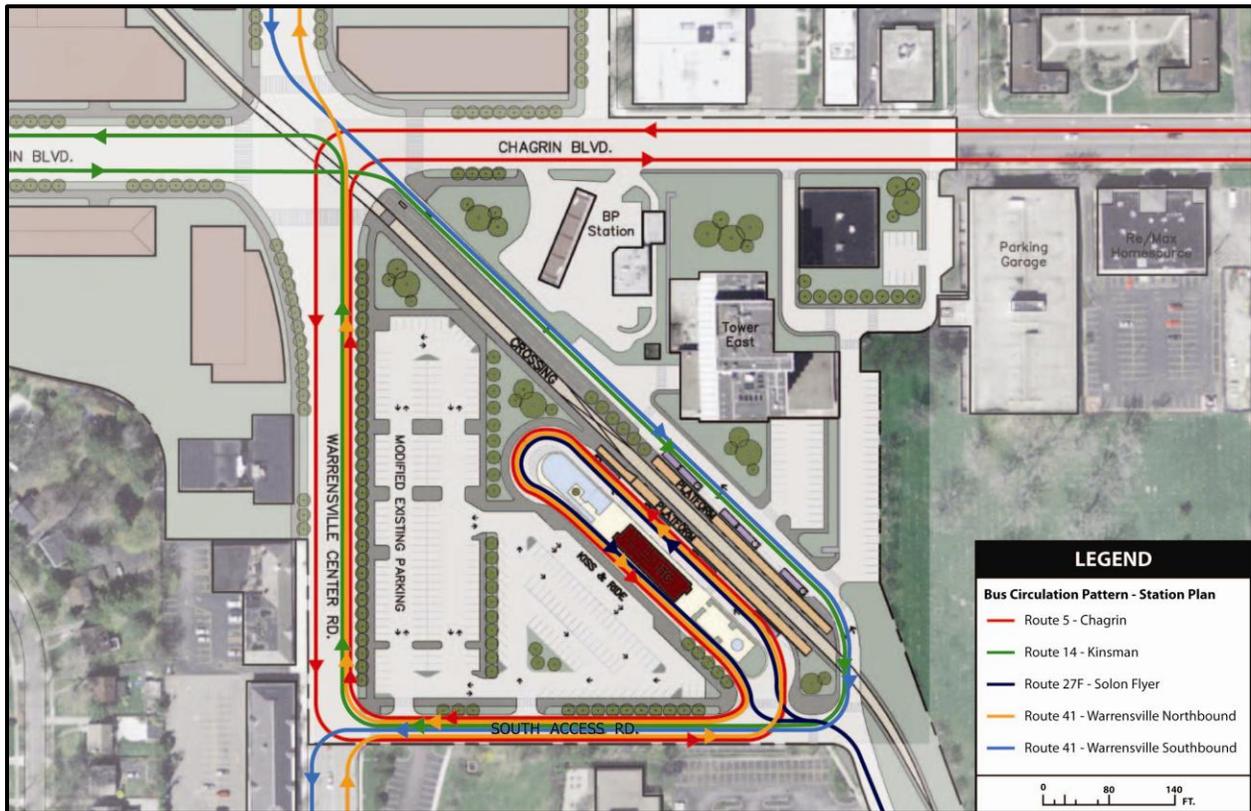


BUS CIRCULATION

Improving bus circulation is one of the primary goals of development of the Intermodal Transit Station, and influenced both the site layout and the placement of access points in all of the proposed development levels. The study team worked closely with RTA to ensure that the new designs provided convenient and safe alignments for bus movements into, through and out of the site.

The proposed circulation patterns for each of the RTA bus routes serving the stand-alone ITC are shown in Figure 4-9. Route 14 trips from the west, and route 41 trips from the north north, would enter the site through a one-way inbound driveway that parallels the existing Northfield Road alignment along the eastern side of the tracks before dropping off passengers on the eastern side of the station. The buses would then continue south and west along the southern access roadway before returning to Warrensville Center Road. Northbound trips on Route 41, as well as Route 5, would enter the station along the southern access roadway, turning in the bus-turnaround on the western side of the station and dropping off passengers at platforms by the ITC building before continuing around the bus turn and back out of the site using the southern access roadway to return to Warrensville Center Road. Route 27F would approach the station from the south along the reconfigured alignment of Northfield Road.

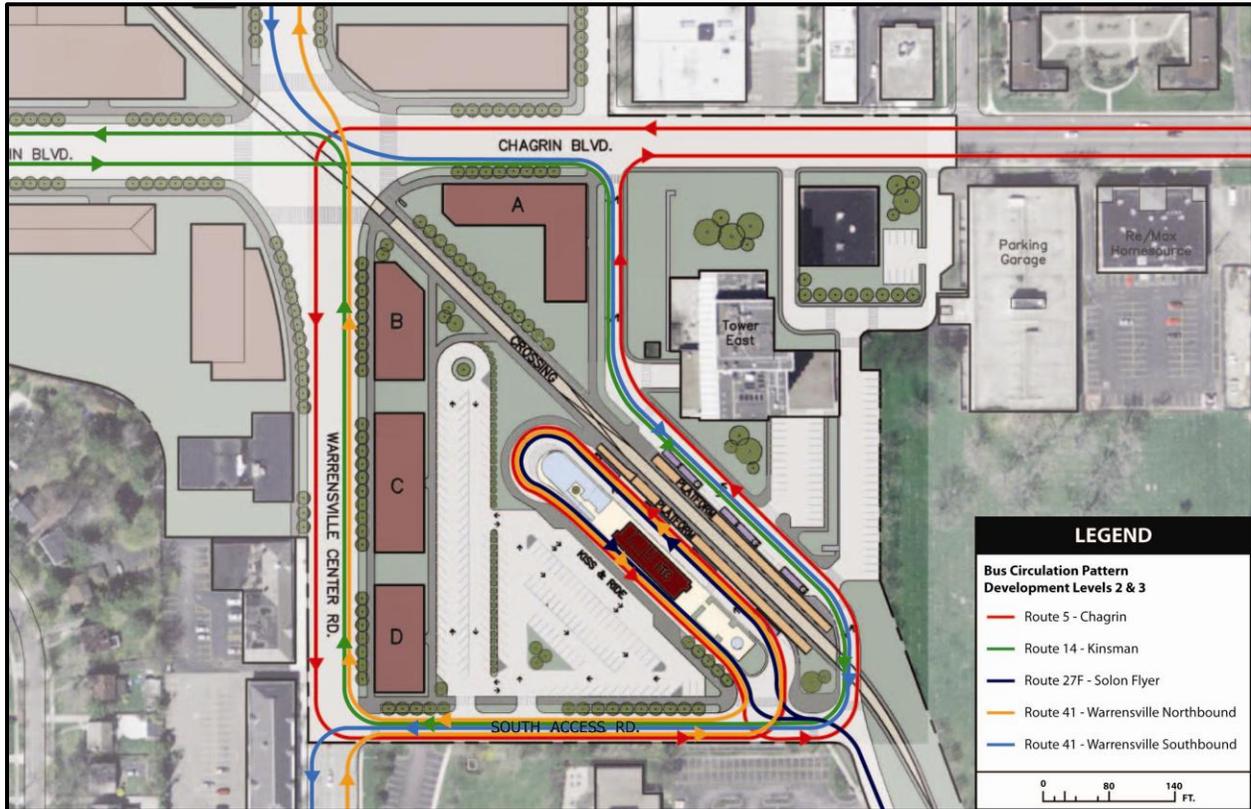
Figure 4-9: Bus Route Circulation Pattern - Stand-Alone Station Concept



The circulation pattern for development levels 2 and 3 is shown in Figure 4-10. The roadway configuration around the station would be essentially the same, except that the one-way roadway following the Northfield alignment on the northern corner of the station would be replaced by a two-way roadway that would enter the site from an access point along Chagrin Boulevard. This change would allow route 5 trips to exit the site directly onto Chagrin Boulevard, rather than returning to Warrensville Center Road on their outbound trip. The other bus routes would operate as in the stand-alone station scenario.



Figure 4-10: Bus Route Circulation Pattern - Development Levels 2 and 3 Concepts



INTERIM INTERMODAL TRANSIT CENTER FACILITIES

The project team considered alternatives to constructing the intermodal transit center in the southeastern quadrant of the intersection, based on two possible future scenarios. The first of these is that an interim facility would be required during the period between the reconstruction of the Chagrin Warrensville Intersection, at which time Van Aken Boulevard would be closed to traffic between Farnsleigh and Chagrin, and the extension of the rail line, which is likely to occur somewhat later. The second scenario considered what happens if the rail line is not extended in the near future and the Intermodal Transit Center thus cannot be constructed south of Chagrin Boulevard.

Interim Facility

This facility would be used during the period after the reconstruction of the roadway and intersection, which is currently programmed for 2014, but before construction of the extension of the rail line and construction of the ITC, which is earlier in its development process. Because this would result in the closure of Van Aken Boulevard north of the station and Northfield Road



south of the intersection, bus circulation patterns in the area would be affected. A number of options for changes to the bus circulation pattern within the station were considered by the project team, which determined that the only workable solution in the interim condition would be a bus loop to be constructed to the southeast of the present station (Figure 4-11), opening out at the northwest corner of the intersection, with an opening at the corner, where the building currently housing the Starbucks coffee shop stands. This would allow buses approaching from the west on Chagrin, from the south on Warrensville or from the east on Chagrin/Kinsman to continue to easily access and egress from the site, while maintaining bus to rail connectivity at a level as good or better than today, and with improved safety (because passengers would no longer have to cross an active roadway to reach adjacent development).



Figure 4-11: Interim Bus Transfer Site

Long Term Site on North Side of Chagrin Boulevard

The other possibility entertained by the project team was that the current Blue Line Extension Project would not result in the extension of the rail line, and that a semi-permanent intermodal transit center would need to be established with the rail station and bus connections remaining north of Chagrin Boulevard in the midst of the proposed transit oriented development. In addition to the goals of the project, the six critical criteria that guided the discussion of identifying a long-term alternate intermodal transit center site were as follows:



- There must be a direct connection between rail and bus to allow passengers an easy transfer between the two modes. Transfer activity is too high to allow the connection between the rail and bus routes to deteriorate from its present condition.
- Connections must not negatively impact travel time on the bus routes, because many of the routes are scheduled with little tolerance for delay. A delay of only a few minutes could result in an increase in the headway (the wait time between buses on the route) on the bus routes or an increase in the number of buses operated in order to maintain the headway.
- Bus-to-bus connections also must not be separated, because of the high level of bus-to-bus transfer activity that occurs at the site.
- The transfer center must be near to the Warrensville-Chagrin intersection to facilitate transfers with Route 41 - Warrensville Center Road. This route does not enter the station in the northbound direction and picks up and drops off passengers on Warrensville Center Road.
- Since the intermodal transfer center would serve as an end station in the long term, access to park-and-ride space ideally would be improved over the present arrangement.
- Future extensions of the rail line south of Chagrin Boulevard must not be precluded. GCRTA's long term plan remains to extend the Blue Line at some point in the future.

In summary, developing a new station on one of the two potential sites identified below would make it impossible to meet many of the connectivity and livability goals of the project stated earlier in this document. By remaining on the existing site, the new transit center would fail in the goals of facilitating development in the station area. The sites would consume an excessive amount of the available development land available in the northwestern intersection quadrant, while opening no new opportunities for development in the southeastern quadrant. The two sites would not eliminate the need for transit users to make uncontrolled crossings of major streets to reach adjacent development, and would do little to address the problems with bus circulation, pedestrian and bicycle movement.

Two potential sites were identified (Figure 4-12). In the first, the rail line would be truncated on the north side of Farnsleigh, effectively making a station near the present Farnsleigh station site the terminal station (the station would have to be extensively rebuilt to allow it to serve as a terminal station and allow trains to turn at the station). Bus parking, loading and layover points would be located diagonally across Farnsleigh and Van Aken on the eastern side of the transit oriented development site. Because GCRTA's bus schedules could not tolerate the delays generated by entering the site from Farnsleigh, access would be required along Chagrin



Boulevard east of the Warrensville-Chagrin intersection, resulting in an intermodal transit center site that runs from Chagrin Boulevard to the Farnsleigh-Van Aken intersection.

The second site is the interim station site, which is essentially a rebuilt station and intermodal transit center at the site of the existing station, with improved bus access built into the corner of the Chagrin-Warrensville intersection, similar to the arrangement of the Interim site.

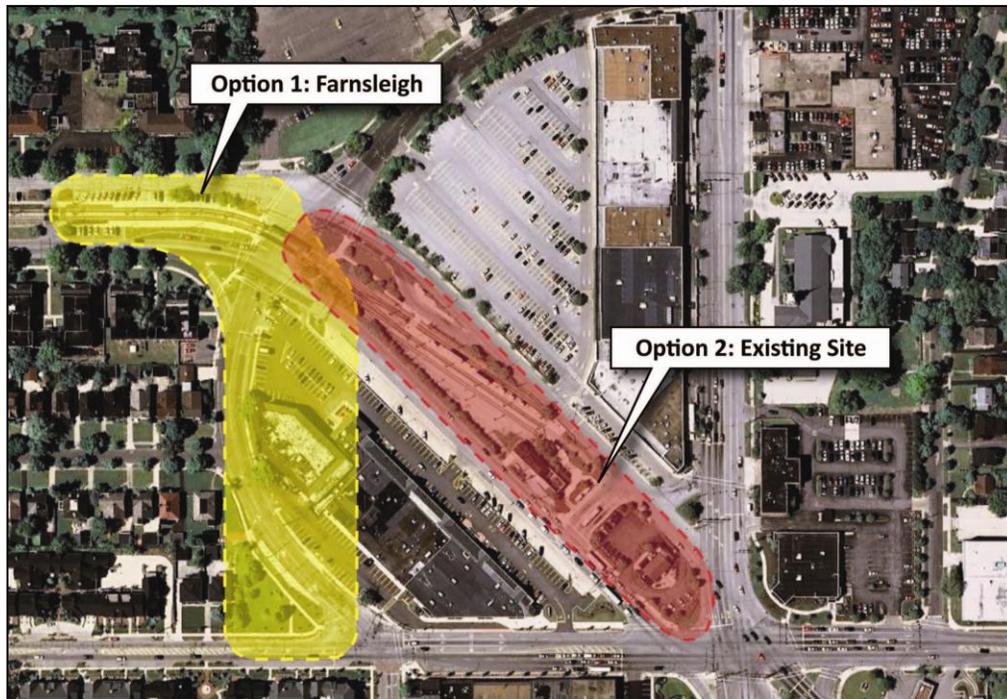


Figure 4-12: Options for Alternative Intermodal Transit Center Sites

Option 1:

The first option has the advantage of freeing up the northeastern corner of Chagrin Boulevard and Warrensville Center Road for development. The visibility of this corner is important from a development perspective. Truncating the rail line at Farnsleigh would free up the present station site for development. The bus interface with the rail between Chagrin and Farnsleigh could be integrated into a multi-story parking garage at the eastern edge of the site.

However, the first scenario violates a number of the goals set for the location of the permanent alternative site. Forcing patrons to cross the Farnsleigh-Van Aken intersection to connect between rail and bus would significantly worsen the existing connectivity between bus and rail, and introduce additional safety issues at the intersection. The connection to the rail would be particularly bad for users of Route 41, which would most likely stop along Warrensville Center Road in both directions, causing passengers on this route to filter through the development to



reach the connection with the rail and other bus routes at the ITC. Finally, GCRTA would not accept permanent development on its existing right of way that precludes future extensions of the rail line.

Option 2:

The second scenario would keep bus access in the prime Chagrin-Warrensville northwestern corner, though this could be ameliorated by wrapping the corner and existing station in development. The existing station and bus interface could be smaller at this location than at the location to the east because bus access to the rail would be very near the intersection, eliminating the need for long lanes for buses to reach the bus-rail interface point. The existing site would allow passengers to be contained within the station location with exit points only at either end of the station (at Chagrin-Warrensville and at Farnsleigh). Route 41 bus stops would be adjacent to the station, and except for Route 41 north users, bus passengers need not cross traffic lanes to reach connections to rail or other buses. Future extension of the rail line would be maintained in its present configuration. Some elements of the station, such as the driver comfort station and the substation, potentially could be moved to more convenient locations, provided funding is available to do so. This option also would have a considerably lower capital cost than the Farnsleigh option.

Further discussion between the City of Shaker Heights, GCRTA and interested developers will be required to resolve the issues of interim locations of the bus interface during the construction period, and for longer-term locations should the rail extension not be completed in the near term.

CONCEPTUAL COST ESTIMATES

Conceptual estimates of project cost were prepared for the proposed Intermodal Transit Center, including the rail extension and associated infrastructure. More detail on these estimates is included in Appendix E. The estimated total cost of developing the Intermodal Transit Center, including the station and rail infrastructure, is about \$46 million in March 2014 dollars (assuming an escalation of 12.6%, or 3% per year compounded, between March 2010 and March 2014). This cost includes a 30% contingency (about \$7.5 million) covering unforeseen costs associated with the design or construction of the site, as well as all engineering, architectural, planning, environmental clearance and design costs.

Of the total cost, over sixty percent of the pre-contingency cost (about \$20 million in 2014 dollars) is made up of the rail, traffic and signals improvements related to realigning and extending the rail line and relocating the substation. The station sitework and buildings cost is about \$5 million.



CHAPTER 5. PARKING STUDY

Parking facilities are an integral part of the overall transportation system. It is important to provide appropriately sized and properly designed parking facilities to accommodate the Intermodal Transit Center (ITC) as well as the transit-oriented development (TOD) for each of the proposed levels of development. Depending upon the future length of the proposed Blue Line extension, the ITC may either be a terminal station or one of many interim stations along the light rail line. A terminal station will require more parking than an interim station to allow the site to serve as a park-and-ride destination. In either case, providing sufficient parking will be essential for accommodating existing transit riders and encouraging more transit use at the site, as well as accommodating the parking needs of surrounding development.

Parking facility design is based on effective supply, parking demand, utilization, occupancy, duration and turnover. Parking availability and pricing are key determinants in mode choice. The parking component of this study reviews and incorporates a number of parking resource materials (summarized in Appendix C), providing an analysis that is both grounded in industry standards and appropriately reflective of current TOD guidelines and practices. The resulting parking program will serve the Intermodal Transit Center, the planned development, and the community well.

PARKING PLAN CONCEPTS

Although the parking demand varies with each level of development, there are fundamental concepts that were applied to all levels of the plan.

Parking Demand for Transit Center

The transit-related parking demand was estimated based on the available information in the *NOACA 2007 Transit Network Guide* and coordination with GCRTA's planning staff. The transit-related parking demand is consistent for all three levels of development.

Parking Demand for TOD

The peak parking demand for the proposed TOD land uses (office and retail) in urban settings was estimated based on the information and parking generation rates provided in ITE's *Parking Generation, 3rd Edition*.

Shared Parking

Smart growth and transit oriented development incorporate a "park once" mentality that encourages drivers to park in a central location and proceed on foot to their destinations, taking advantage of the pedestrian-friendly environment. The resulting reduction in parking



demand is reflected in the concept of shared parking. Shared parking allows for a reduction in parking provision based on the theory that parking demand peaks will vary among neighboring land uses and that automobile trips will be reduced by the number of pedestrian trips that occur between land uses.

Walkability

Providing pedestrian connectivity between land uses and high quality pedestrian amenities is an important component of transit oriented development. Large stretches of pavement and parking that require pedestrians to walk long distances are not consistent with transit oriented development principles.

Transit Supportive Parking and Site Layout

Parking should not be the first thing a person sees when approaching a TOD site; it should be accessible but not a predominant feature of the site. Although this study does not include parking facility design, some design elements were considered in locating the parking facilities. Examples include vehicle access locations (driveways), pedestrian access, curb cuts, opportunities for landscape buffers, mixed-use development opportunities with structures, and consideration of below-grade or partial below-grade structures to minimize height and visual impact. Good design features greatly improve the impact of parking garages on the community and the environment. Street alignment and wrapping with retail supports a lively pedestrian environment. Shared parking between transit stations and other uses can reduce that amount of parking that is necessary. Parking management strategies can also be applied to encourage smart growth: strategically applying parking spaces for both on-street and off-street facilities; recognizing parking location, cost, supply/demand issues; creating pedestrian-friendly orientation and access, and de-emphasizing automobile access with block placement, orientation, and ground floor land use activation. Effective implementation of transit supportive parking policies and programs is facilitated by engaging stakeholders in defining the problems and developing context-sensitive parking solutions.

Parking Management Strategies

Parking management can significantly reduce the number of necessary parking spaces, while providing additional benefits of improved user quality of service, more accessible land use patterns, reduced motor vehicle traffic, congestion, accidents and pollution, more attractive communities, and better mobility for non-drivers. Parking management strategies can increase parking facility efficiency as well as reduce parking demand. Strategies that can increase parking facility efficiency include:

- Sharing parking
- Regulating parking



- Establishing more accurate and flexible parking standards
- Establishing parking maximums
- Providing remote parking and shuttle services
- Implementing smart growth policies
- Improving walking and cycling conditions
- Increasing the capacity of existing parking facilities

Strategies that can reduce parking demand include:

- Implementing mobility management
- Pricing parking correctly
- Improving parking pricing methods
- Providing financial incentives to reduce demand
- Unbundling parking (i.e., do not automatically include parking with apartment rental)
- Reforming parking taxes
- Providing bicycle facilities

There are also a number of strategies that support parking demand management, including:

- Improving user information and marketing
- Improving enforcement and control
- Establishing transportation management associations and parking brokerage
- Establishing overflow parking plans
- Addressing spillover problems
- Improving parking facility design and operation

Research has shown that individual parking strategies typically reduce parking requirements by five to 15 percent, while a cost-effective, integrated parking management program can often reduce parking requirements by 20 to 40 percent and improve user convenience. It would be tremendously beneficial for Shaker Heights and GCRTA to work together to develop an integrated parking management program for the ITC and surrounding development.

Transit Supportive Zoning

Land use regulations for the site are beyond the scope of this study. However, as the project moves forward, the City's zoning standards should be reviewed to verify that they will encourage and support transit oriented development in the area. The application of transit supportive zoning or overlay zones to the site will promote transit usage and ensure that development is consistent with the ITC.

PARKING PLAN DEVELOPMENT

The purpose of the parking study is to determine the appropriate amount of parking to support the Intermodal Transit Center development and surrounding development. The parking study assesses the parking demand for each of the three development levels.

Land Use

Parking demand associated with the ITC will remain constant for each level of development. However, the parking demand associated with the transit oriented development will vary according to the level of development, with no new development in the Station Plan, some new retail and office development in Level 2, and increasing office and retail development in Development Level 3, as defined in Table 5-1. The associated conceptual plans for the Station Plan and Development Levels 2 and 3 are illustrated in Figures 4-1 through 4-3. Given the site constraints—both its size and being bounded by roadways—it will be important to maintain a balance between the level of development and available parking as the plan is implemented.

Table 5-1: Proposed Land Uses

Station Plan	Development Level 2	Development Level 3
Bus & Rail Transit with Station	Bus & Rail Transit with Station	Bus & Rail Transit with Station
No TOD	40,000 SF Retail	100,000 SF Retail
	110,000 SF Office	215,000 SF Office

Parking Demand Methodology

Parking demand is based on the amount and type of land use in the study area. As previously mentioned, parking demand for the Intermodal Transit Center is based on information provided by the *NOACA 2007 Transit Network Guide*, which includes parking usage and demand data from existing GCRTA facilities, and coordination with GCRTA’s planning staff. Parking demand for the office and retail development is based on the parking generation rates and guidelines for urban development in ITE’s *Parking Generation, 3rd Edition*. The detailed calculations of parking demand are included in Appendix C.

The parking analysis incorporates rational reductions in parking demand based on the demographic context of the site, surrounding and planned uses, and proximity to transit service. Reductions due to linked trips (internal trip capture) are made based on conditions of the area and the types and combinations of planned uses. Some uses lend themselves to linked trips; for example, office workers or shoppers may walk to lunch or dinner at nearby



restaurants. Parking demand is also reduced by trips made by transit, bicycle or walking. Demographics are closely linked to non-motorized trips, as documented by the U.S. Department of Transportation's *National Bicycling and Walking Study*. A younger average age predicts an increased likelihood of bicycling and walking. Transit trips are dependent upon proximity of transit service, population density, and transit dependent population. Consequently, it is reasonable to reduce the parking demand at this site based on assumed linked parking trips and trips made by alternate travel modes.

Estimated Parking Demand

The parking demand for each proposed development level is estimated by combining the projections for the ITC-related and TOD-related parking demand, as developed in Appendix C. Given the variability in the estimating process, the parking projections should not be interpreted as precise numbers, but as an indication of the possible demand level. The actual parking demand may be reduced as a result of transit use, pedestrian and bicycle trips, and an effective parking management program. For that reason, the total parking demand is presented in Table 5-2 along with potential reductions of 10%, 20% and 40%, which may be reasonable based upon alternate mode and parking management reductions.

Table 5-2: Estimated Parking Demand

	Station Plan	Development Level 2	Development Level 3
Transit	200	200	200
Office	0	275	516
Retail	0	112	262
Total	200	587	978
10% Reduction	N/A	528	881
20% Reduction	N/A	469	783
40% Reduction	N/A	352	587

Note: Reductions are not appropriate for Station Plan because it contains only one land use.

Parking Supply and Parking Demand

The concept plans for the three proposed levels of development show parking facilities with an identified number of parking spaces. The Station Plan and Development Level 2 show surface parking only, while Development Level 3 incorporates a 400-space parking structure in addition to the surface parking. The total available parking spaces identified in the conceptual plans for

each development level are shown below. The available parking includes the identified parking facilities to the north and east of the ITC as well as those to the south and west.

- Station Plan 288 spaces
- Development Level 2 210 spaces
- Development Level 3 489 spaces

Comparison of the estimated parking demand to the parking supply for each level of development shows that parking demand for Development Levels 2 and 3 may exceed the on site parking supply as identified in the concept plans. Actual variances and shortfalls will depend upon the reductions in parking demand that may be experienced as a result of alternate mode trips and parking management. If a large amount of development is desired, it may be necessary to develop off-site parking accommodations.

PARKING PLAN CONCLUSIONS AND RECOMMENDATIONS

The parking analysis for the Intermodal Transit Center and the associated transit oriented development indicates a potential demand of 200 up to almost 1000 spaces, depending upon the level of development in combination with the appropriate parking demand reduction for non-auto trips and parking demand management. The parking analysis indicates that there may not be enough available land area within the site to meet the projected parking demand at higher levels of development. It is therefore important to consider the parking needs in balance with the planned land uses and densities as the development moves forward. It may be appropriate to consider off-site parking accommodations if a substantial amount of development occurs. A parking management plan should also be incorporated into the development plan to ensure provision of an appropriate amount of parking.



CHAPTER 6. PEDESTRIAN AND BIKE ACCESS PLAN

It is imperative that the ITC provide safe and appropriate pedestrian and bicycle facilities and treatments within the project area that connect to the surrounding area. Accommodations for pedestrians and bicyclists between the existing transit facility at the terminus of the Blue Line and the surrounding area are disconnected, inadequate and hazardous. Relocation of the rail and bus facilities to the new ITC offers the opportunity to radically improve the bicycle and pedestrian network and promote use of non-motorized transport by implementing safe, effective and appropriate facilities, features and amenities.

The bicycle and pedestrian plan for the new ITC must provide safe and effective pedestrian and bicycle features in the project area in order to achieve the goals stated in the *Warrensville/Van Aken TOD Plan*. Without safe pedestrian and bicycle access to the Intermodal Transit Center, the proposed redevelopment project will not succeed as a transit oriented destination. Pedestrian mobility will be greatly enhanced by reducing the size and function of the current six-legged Warrensville/Chagrin/Northfield/Van Aken intersection, thereby creating the framework for a walkable commercial district that includes safe access to the transit center. Walking through the station area must feel safe, comfortable and inviting for all pedestrians, not just the brave or those with limited transportation choices, as is the case for many of the transit riders using the existing facility. The new ITC must allow pedestrians and bicyclists to travel to, from and between their destinations comfortably and safely.

EXISTING CONDITIONS

Pedestrian accommodations in and around the existing transit facility and the adjacent Warrensville-Chagrin-Northfield-Van Aken intersection are inadequate and often unsafe, as shown in Figure 6-1. Several pedestrian movements required by transit riders making bus-to-bus or bus-to-rail transfers are dangerous, requiring crossing of the intimidating six-legged intersection and lacking appropriate pedestrian treatments. Pedestrians frequently choose to cross at mid-block locations to avoid the traffic, crossing distance, and wait time at the Warrensville-Chagrin-Van Aken-Northfield intersection. This behavior creates yet another hazardous condition. Bicycle accommodations are non-existent, and require bicyclists to mix with the traffic stream and hope for the best. Reconfiguration of the six-legged intersection into a four-legged intersection, along with the provision of safe and effective pedestrian and bicycle treatments, will tremendously improve the area for non-motorized travelers.



Figure 6-1: Warrensville/Van Aken Existing Conditions

BICYCLE/PEDESTRIAN ACCESS PLAN PURPOSE

The purpose of the pedestrian and bicycle access plan is to connect the proposed Intermodal Transit Center with the community and its surrounding transportation network in a way that safely and appropriately accommodates bicycle and pedestrian traffic traveling in, through and to the study area. It also must comply with the Northeast Ohio Areawide Coordinating Agency's (NOACA) Regional Bicycle Transportation Plan. The NOACA priority routes located adjacent to the ITC site are Warrensville Center Road, Chagrin Road, and Northfield Road. As such, bicycle connections will be made between the ITC site and Chagrin Boulevard, Northfield Road, and the Warrensville Center Road/Chagrin Boulevard intersection as well as connections to adjacent neighborhoods and the proposed redevelopment area defined by the *Warrensville/Van Aken TOD Plan*.

Bicycle and pedestrian needs are not necessarily the same. The infrastructure and amenities for each mode can differ, as in the case of bike lanes vs. sidewalks, and travel by each mode is



often for different purposes. Consequently, the bicycle and pedestrian elements of this study will be considered and developed as separate features that will ultimately be integrated to complement each other effectively. Additional background information on bicycle and pedestrian facilities is provided in Appendix D.

BICYCLE FACILITIES

Appropriate bicycle facilities for the ITC site are bicycle lanes, signed bicycle routes, signed shared roadways, sharrows on full use lanes with wider travel lanes, as possible. It is also important to provide bicycle amenities in and around the ITC to encourage transit use by bicyclists, including sheltered bike parking facilities (covered bike racks).

Consideration could be given to developing a bike station within the surrounding TOD. Bike stations are not implemented or managed by RTA, but one could be developed by others as part of the TOD that surrounds the ITC. Bike stations are sometimes called bike-transit centers, enabling bicycling and other alternatives to be an integral part of the transportation system. Bike stations typically include secure and covered bicycle parking facilities, bicycle information (maps, travel information, tourist information, etc.), restrooms, and they often provide locker room facilities with showers. Additional services bike stations may provide are: bike rental, bike repair shop, bicycle and commute sales and accessories, and access to environmentally-clean vehicle sharing. It is possible to outsource the bike station to companies that run such facilities.

PEDESTRIAN FACILITIES

All transit riders are pedestrians at some point in their trip, so pedestrian facilities, connections and amenities are important for all users of the Intermodal Transit Center. The *Warrensville/Van Aken TOD Plan* states, “A high quality pedestrian realm is a critical element in promoting transit ridership, and at the same time can have considerable economic benefits for an area.” To do this, pedestrian facilities must exhibit the following characteristics: sufficient width, protection from traffic, facilitate safe pedestrian and vehicular movement, street trees, pedestrian-scale streetscape elements, and connectivity. These features will combine to provide a pedestrian realm that is walkable, inviting and safe.

Area and site mapping was used to assess pedestrian travel patterns within the project site and the surrounding area, with a focus on connections between the Intermodal Transit Center, adjacent residential neighborhoods, and the surrounding commercial district with its planned redevelopment. Pedestrian accommodations for the ITC will include a connected sidewalk network, safe and suitable pedestrian crossings, and streetscape amenities to enhance the



pedestrian environment. The pedestrian connections are centered on the Intermodal Transit Center, with connections to the surrounding commercial and residential areas.

ITC BICYCLE AND PEDESTRIAN FEATURES

The conceptual plans for the ITC's three proposed levels of development will substantially improve conditions and access for pedestrians and bicyclists by providing a safe, welcoming and friendly environment within the site. The plans enhance connectivity between the site and the surrounding area; they provide features that enhance internal bicycle and pedestrian circulation; they provide connectivity to city and regional bicycle networks; they provide good bicycle and pedestrian access to and from the site; the transit station features enhance the bicycle and pedestrian environment; and the outdoor environment creates attractive and welcoming public spaces. Features common to all three plans are listed below and features of each conceptual plan are described in subsequent sections.

- Pedestrian connections with surrounding neighborhoods and developments: The site is bounded by sidewalks which connect the ITC and proposed development (as applicable) with the surrounding area, and integrate the ITC features with those in the roadway reconstruction plan.
- Internal bicycle/pedestrian circulation: Wide sidewalks are provided throughout the site, allowing for internal circulation of bicyclists and pedestrians. The sidewalks are configured to provide direct connections between the Chagrin Boulevard / Warrensville Center Road and the ITC, as well as the adjacent parking areas and commercial development (as applicable). Continuous, wide sidewalks are shown along both sides of the tracks between the Chagrin Boulevard/Warrensville Center Road and Northfield Road, providing opportunities for pedestrian-scale lighting, landscaping, and other streetscape elements, as well as direct access to the station. Additionally, sidewalks are shown along the site roadways and parking lot borders, maximizing pedestrian connectivity and ease of travel. The parking lots are configured in a manner to minimize large expanses of asphalt, thereby improving the walkability of the site. Access routes between the parking areas, the kiss-and-ride, the bus stop areas, the rail platforms and the transit station itself are configured to minimize pedestrian walking distance and provide a safe and enjoyable experience.
- Bicycle connectivity to city and regional network: The sidewalks, as shown, are wide enough to accommodate both bicycle and pedestrian traffic, providing connectivity



through the site. The South Access Road is 36 feet wide, which could allow bike lanes between Northfield Road (a NOACA Priority Roadway) and the ITC site.

- Bicycle/pedestrian site access: Non-motorized travelers will be able to access the site via signalized intersections with protected crossings at the Chagrin Boulevard/Warrensville Center Road and the South Access Road/Warrensville Center Road intersections. Unsignalized access is provided at the stop-controlled South Access Road/Northfield Road intersection via marked crosswalks. Additional marked crosswalks are provided between the parking areas adjacent to Tower East and the ITC.
- Transit station features: The transit station provides interior and covered exterior space to comfortably accommodate pedestrians. The covered area includes designated space for secure bicycle parking.
- Outdoor environment: The plan for each development level identifies greenspace areas and related opportunities for creating public spaces. The streetscape will include pedestrian-scale lighting, landscaping, public art, street furniture, and related elements to create a welcoming, safe and enjoyable environment.

Intermodal Transit Center Station

The Station Plan has no planned TOD and includes the greatest amount of surface parking of the three development levels. Pedestrian access to the site will be promoted by a modification to the existing parking lot located parallel to Warrensville Center Road to provide clear pedestrian paths that provide safe and unambiguous connections between the Warrensville Center Road sidewalk network and the ITC.

Bicycle and Pedestrian Connectivity

The ITC plan incorporates bicycle and pedestrian elements that facilitate travel within the site and it provides connectivity to the surrounding area and destinations, as illustrated in Figure 6-2 and noted below:

- Wide sidewalks accommodate bicycle and pedestrian travel and integrate into the surrounding network and potential future development.
- Wide sidewalks throughout the site facilitate easy circulation and provide connectivity between the ITC, rail station and bus loading areas and the TOD and surrounding pedestrian and bicycle network via direct travel paths.



- Sidewalks provide direct connections between the parking areas and the ITC as well as connections to the Sussex neighborhood, surrounding TOD (including developments to the north and west of the site), Thornton Park, and points beyond
- Bicycle facilities connect to the NOACA priority bikeways on Warrensville Center Road, Chagrin Boulevard and Northfield Road and provide access to surrounding destinations such as the TOD, the Sussex neighborhood, Thornton Park, and points beyond
- Wide travel lanes on the South Access Road to accommodate bicycle travel and connect with the NOACA priority bikeways on Northfield Road and Warrensville Center Road.
- Crosswalks to facilitate safe pedestrian crossings across adjacent roadway networks

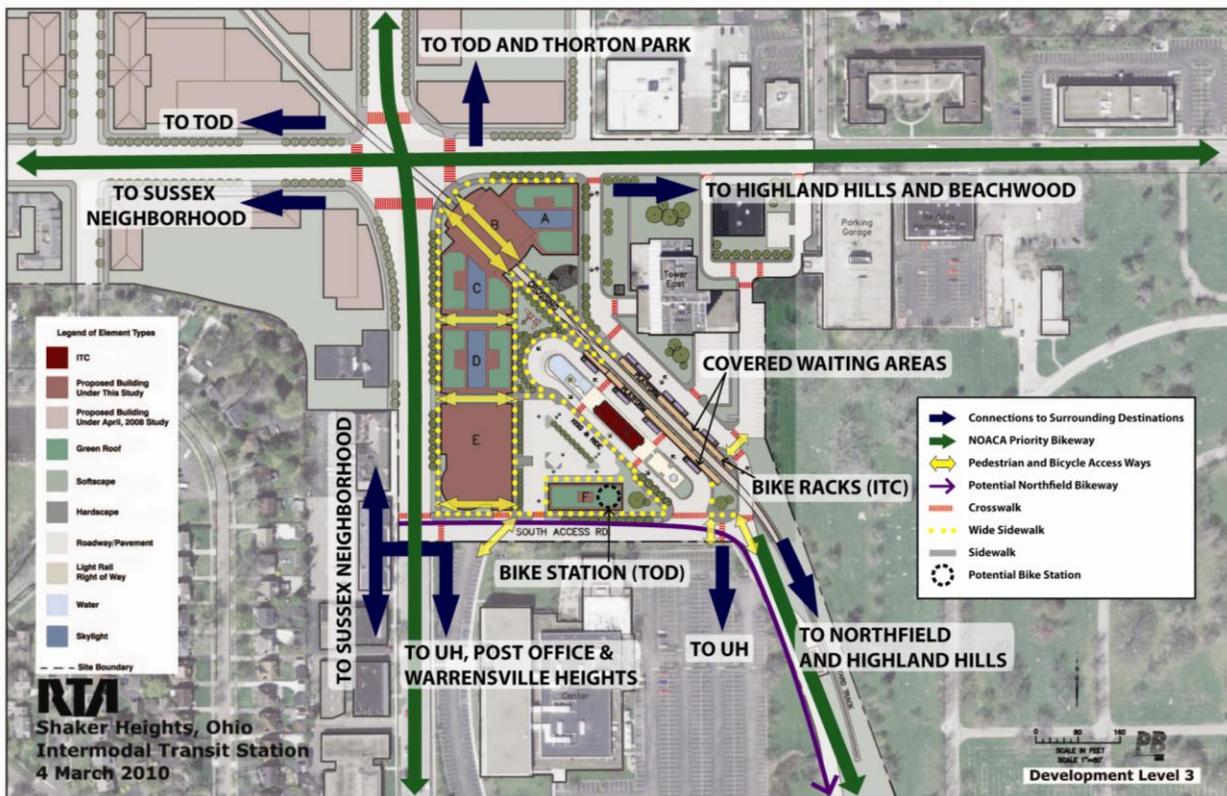


Figure 6-2: Bicycle and Pedestrian Connections and Amenities

The streetscape elements combine to form an environment that is walkable, welcoming and safe. Wayfinding signage helps people identify and locate direct routes to potential destinations.

Development Level 2

The plan for Development Level 2 adds to the station TOD along the east side of Warrensville Center Road and the south side of Chagrin Boulevard. The buildings will have building faces that front both the roadway and the interior of the ITC site, creating attractive architectural

finishes that enhance the pedestrian experience throughout the site. The TOD along Warrensville Center Road will be designed to provide connectivity to and through the buildings, facilitating access to the ITC.

Development Level 3

This plan incorporates TOD along the east side of Warrensville Center Road, the south side of Chagrin Boulevard, and the north side of South Access Road. The plan also includes a parking garage, shown at the northeast corner of the South Access Road/ Warrensville Center Road intersection. As in the plan for Development Level 2, this plan provides buildings with finished fronts on both the roadway and ITC sides, along with wide sidewalks that provide connectivity and streetscape opportunities. The buildings in this plan are larger, so care must be taken to develop them in a way that integrates them well with the neighborhood and does not block pedestrian travel. As in Development Level 2, the buildings provide pedestrian connections to and through the facilities, adding atrium space to enhance the pedestrian environment. It is important to note that Building B, a multi-story facility located over the rail tracks, will be designed in a manner that is open, making pedestrians feel secure and safe and allowing streetscape features such as lighting and landscaping to visually connect the ITC with the Chagrin Boulevard/Warrensville Center Road intersection and the adjacent redevelopment.