

NOACA

REGIONAL TOD SCORECARD AND IMPLEMENTATION PLAN

PART I: TOD TYPOLOGY, METRICS, AND SCORECARD

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AECOM



Cleveland
Neighborhood
Progress



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1 Executive Summary

1.1 Introduction

Transit-oriented development, or TOD, is compact, walkable development integrally linked to public transportation. While every region, every corridor, and every station area is unique, successful TOD is usually a combination of four foundational ingredients:

- Development that is compact and dense—not in uniform, absolute terms but in relative terms, compared to the surrounding area. This allows more people to live, work, shop, or go to school within walking distance of the station or stop.
- A rich mix of land uses, if not at each station then in each segment of a corridor. Mixed-use development helps create safe “24/7” places. When housing, jobs, and other uses are in close proximity, many daily activities can be reached by walking or biking. Mixed-use development also allows more efficient use of the transit system, by generating commuter trips both to and from the station in question.
- A safe, inviting, and interconnected public realm that “glues” land uses to each other and to the transit station. Transit-oriented development is also pedestrian-oriented development, and successful station areas include a grid of small, navigable blocks with ample sidewalks, active uses at street-level, attractive amenities, good lighting and way-finding, bicycle lanes and facilities, and uniform accessibility for seniors, the disabled, and people with baby carriages.
- A new approach to parking. TOD doesn’t mean “no cars”—even with an emphasis on transit, pedestrian, and bicycle use, successful TOD will generate car trips. But TOD does require less parking. It can afford lower parking ratios that take advantage of transit; shared parking facilities that take advantage of mixed uses; and location and design standards that blend into the district.

1.2 TOD Place Typology

Notwithstanding these common ingredients, TOD is not a “one-size-fits-all” concept. It can occur in different shapes, sizes, and combinations. A key feature of NOACA’s TOD Scorecard and Implementation Plan is the *TOD Place Typology*. The typology sorts the “universe of stations”—42 rail and bus rapid transit stations, 10 bus priority corridors organized into 99 segments, and 10 outlying town centers—into seven categories differentiated by location, connectivity, land use, urban form, and intensity:

- Metro Core
- Town Center
- Neighborhood Center
- Main Street
- Neighborhood Residential
- Industrial/Transitional
- Special Destination

These categories are described in detail in Section 4 of this report. A station’s Typology category reflects its existing conditions as well as its future aspirational character. The Typology indicates the ultimate vision for a station area, regardless of current conditions, and is not expected to change unless the community’s vision for a neighborhood or district fundamentally changes.

1.3 TOD Readiness

TOD does not happen overnight. A second analytic framework, the *TOD Readiness Scorecard*, measures how a station is doing relative to the full TOD potential implied by its Place Typology category. There are four overall Readiness scores: *Long-Term*; *Emerging*; *Ready*; and *Arrived*. These scores *are* expected to change over time as conditions in a station area evolve. The purpose of the Readiness Scorecard is two-fold: to identify stations where high-priority investments are needed to support TOD, and to set realistic expectations for the timeframe in which different stations are likely to blossom. The TOD Readiness Framework is presented in Section 5 of this report. Results of the assessments are presented in Section 6.

1.4 TOD Analysis Tools

The data and analysis tools used to assess the universe of stations in the Regional TOD Scorecard and Implementation Plan study are not static. Appendices 1 and 2 provide the dynamic scorecard tools that NOACA can use on an ongoing basis, and background data.

2 Selection of Stations and Corridors for Analysis

This chapter defines the "Universe of Stations" analyzed in Task 1. The Universe of Stations consists of:

1. All rail stations on the GCRTA Red Line
2. All stations on the GCRTA Blue, Green, and Waterfront Lines, either individually or in clusters of closely spaced stations
3. The GCRTA HealthLine BRT service, in clusters of closely spaced stops
4. Ten Priority Bus Corridors designated by GCRTA, including the Cleveland State Line BRT service
5. A sampling of suburban town centers and bus transit centers

Based on discussion at the Project Kickoff Meeting of January 5, 2016, and further research by AECOM, the universe of stations was confirmed at the February 9, 2016 working meeting and used as an organizing framework for subsequent Task 1 activities.

2.1.1 Red Line

Each of the 18 Red Line stations is included individually in the universe of stations.

Table 1: Red Line Stations

| | | |
|--------------------------------|------------------------------|-------------------------------|
| Airport | West Blvd. – Cudell | E. 79 th St. |
| Brookpark | W. 65 th – Lorain | E. 105 th – Quincy |
| Puritas | (EcoVillage) | Cedar – University |
| West Park | W. 25 th St. | Little Italy – University |
| Triskett | Tower City – Public Square | Circle |
| W. 117 th – Madison | E. 34 th – Campus | Superior |
| | E. 55 th St. | Stokes – Windermere |

2.1.2 Green, Blue, and Waterfront Lines (The Rapid Light Rail System)

The hub of the Rapid Light Rail system, Tower City – Public Square, is shared with the Red Line, as are the two stations immediately to the east: E. 34th St. and E. 55th St. These three are already counted individually in the Red Line station analysis. The next four stations to the east (from E. 79th St. to Shaker Square, the second hub for the Rapid Light Rail system) are shared by the Green and Blue Lines and are included individually.

East of Shaker Square, where the at-grade Rapid stops are closely spaced (roughly one-third of a mile apart on average), the analytic units for Task 1 will consist of station clusters. In the judgment of the consultant team, the proximity of these station stops and the similarity of their built environment make the cluster approach more analytically useful.

On the Waterfront Line, which extends west of Tower City – Public Square, a combination of clusters and individual stations is proposed. These stations and clusters for the Rapid light rail system are as shown in Table 2.

Table 2: Rapid Light Rail Stations and Station Clusters

| |
|--|
| Main Trunk |
| <ul style="list-style-type: none"> • <i>Tower City – Public Square, E. 34th St., and E. 55th St. (all included as part of Red Line)</i> <ol style="list-style-type: none"> 1. E. 79th St. 2. Buckeye – Woodhill 3. E. 116th – St. Luke’s 4. Shaker Square |
| Green Line (all stations on Shaker Boulevard in the City of Shaker Heights) |
| <ol style="list-style-type: none"> 5. Coventry Road, Southington Road 6. South Park Boulevard, Lee Road, Attleboro Road 7. Eaton Road, Courtland Boulevard, Warrensville Center Road 8. Belvoir Boulevard, West Green Road, Green Road |
| Blue Line (all stations on Van Aken Boulevard; in Shaker Heights unless otherwise noted) |
| <ol style="list-style-type: none"> 9. Drexmore Road (Cleveland), South Woodland Road (on City Line), Southington Road¹ 10. Onaway Road, Ashby Road 11. Lee Road, Avalon Road 12. Kenmore Road, Parkland Road 13. Farnsleigh Road, Warrensville – Van Aken Center Road |
| Waterfront Line (all stations in Cleveland) |
| <ol style="list-style-type: none"> 14. Settlers’ Landing, Flats East Bank 15. W. 3rd (FirstEnergy Stadium) 16. Amtrak, North Coast (E. 9th) 17. South Harbor (Muny Parking) |

2.1.3 HealthLine (Euclid Avenue)

The HealthLine’s two terminal stations (Tower City – Public Square, Stokes – Windermere) as well as Superior Station are shared with the Red Line and are thus already included in the universe of stations. The remaining stations, many within line-of-sight of each other, are clustered as follows for purposes of Task 1.

Table 3: HealthLine BRT Station Clusters

| |
|---|
| In Cleveland |
| <ul style="list-style-type: none"> • <i>Tower City – Public Square Station (already included as part of Red Line)</i> <ol style="list-style-type: none"> 1. E. 6th St., E. 9th St., E. 14th St. (downtown) 2. E. 19th St., E. 24th St. (Cleveland State University) 3. E. 30th St., E. 36th St., E. 40th St. (Midtown) 4. E. 51st St., E. 59th St., E. 66th St. (Midtown) 5. E. 71st St., E. 79th St., E. 83rd St. (Midtown) 6. E. 89th St., E. 93rd St., E. 100th St., E. 105th St., Stokes Boulevard (hospital zone west of University Circle) 7. Adelbert Road, Cornell Road, E. 115th St., E. 118th St., E. 123rd St. (core University Circle District, shared by the Little Italy – University Circle station, but separated by viaduct, indirect walk routes) |
| In East Cleveland |
| <ol style="list-style-type: none"> 8. Lakeview Road (City Line), Roxbury Road/Delmont Avenue <ul style="list-style-type: none"> • <i>Garfield Road/Emily Road, Eddy Road/Wellesley Avenue: shared with Superior Station (already included as part of Red Line)²</i> • <i>Lakefront Avenue/Belmore Road, Debra Ann Lane shared with Stokes – Windermere Station (already included as part of Red Line)</i> |

¹ Drexmore Road Station is in Cleveland; South Woodland Road is on the Cleveland/Shaker Heights City Line.

² The HealthLine and Red Line Superior Stations, while nominally distinct, are just 700 feet apart. The Red Line station’s train shed dominates the view from the HealthLine station.

2.1.4 Priority Bus Corridors

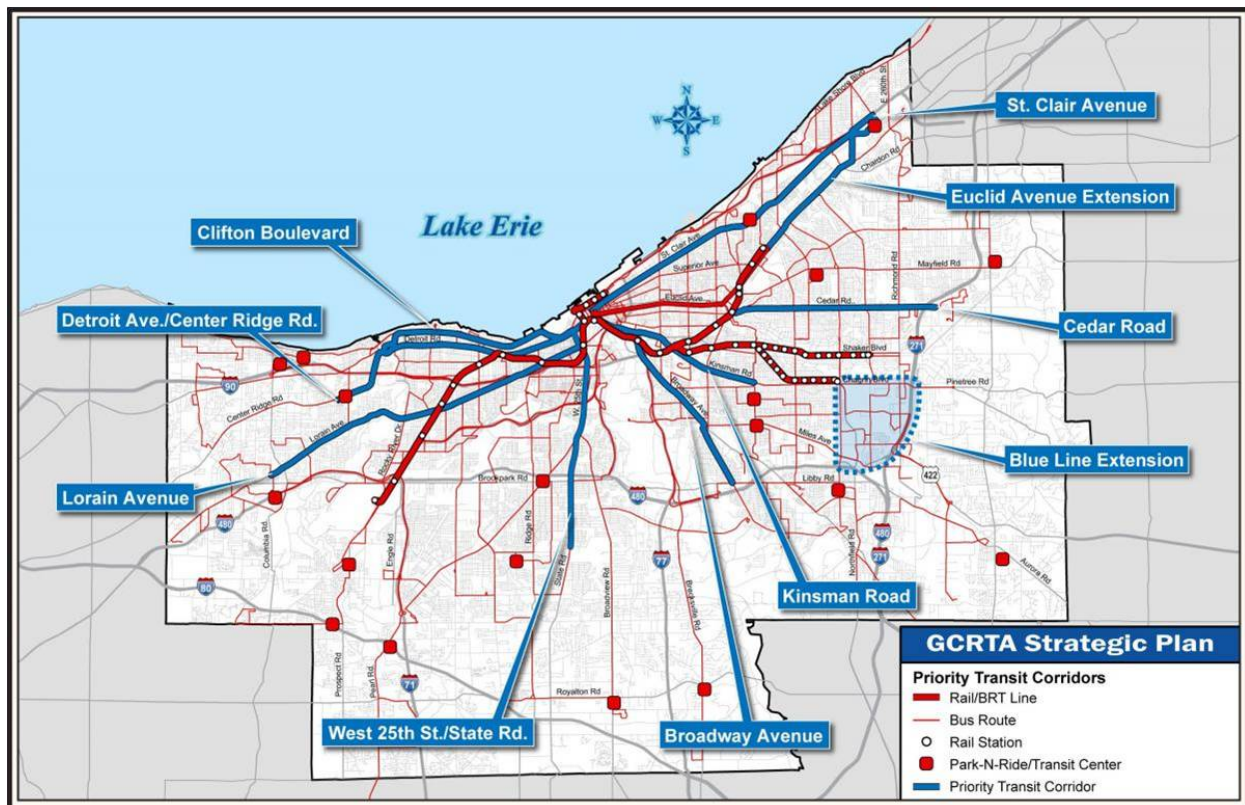
This category consists of ten corridors designated as Priority Transportation Corridors in the GCRTA Strategic Plan³ (Figure 1) and served by one or more GCRTA bus routes:

- the Clifton Boulevard corridor served by the Cleveland State Line routes #55 and #55 A-B-C;
- eight conventional bus corridors; and
- a portion of the corridor connecting Five Points in Collinwood with Downtown Euclid, reflecting the analysis of land use and development performed as part of GCRTA’s recent Red Line/HealthLine Extension study.

Each of these ten routes consists of literally dozens of closely spaced curbside stops, which for TOD purposes are best analyzed in segments. Some routes have termini in downtown Cleveland, while others terminate at Red Line stations outside of downtown. For purposes of this analysis, downtown bus stops in and around Public Square are considered part of the Tower City - Public Square Red Line station and not included separately in the universe of stations. The segments of Superior, Chester, and St. Clair Avenues used by Priority Bus Corridor routes are included.

The suggested segments to be used in lieu of individual stations in Task 1 are listed in the tables below. On each line, segments are listed in order heading outbound from Cleveland.

Figure 1: GCRTA Strategic Plan Priority Transportation Corridors



³ Since publication of the Strategic Plan, in 2015 GCRTA updated the priority corridor set to remove projects that have already been constructed or studied, and shared this map with Cuyahoga County for use in their long range transportation plan update. With this update, the Blue Line Extension and the Cleveland State Line and Euclid Avenue bus corridors were removed, and Warrensville Centre/Harvard Rd. and E. 105th St./Quincy Ave. bus corridors were added. These two corridors will not be added to the universe of stations in this report as these corridors are being evaluated and planned for TOD in other studies.

2.1.4.1 Cleveland State Line

The main trunk of this BRT service originates at Cleveland State University, stops downtown on Chester and Superior Avenues, runs non-stop on Memorial Shoreway to Clifton Boulevard, then runs the length of Clifton Boulevard through the Edgewater section of Cleveland and the City of Lakewood, merging into Detroit Avenue at the Lakewood-Rocky River line.

Table 4: Cleveland State Line Corridor Station Clusters

| | |
|--|--|
| In downtown Cleveland⁴ | |
| A. | Superior Avenue, from E. 3 rd St. to E. 13 th St. |
| B. | Chester Avenue, from E. 13 th St. to E. 22 nd St. (Cleveland State University) |
| In Cleveland, west of downtown | |
| 1. | Baltic Road, West Blvd., W. 104 th St., W. 110 th St. |
| 2. | W. 115 th St., W. 117 th St. (Cleveland-Lakewood City Line) |
| In Lakewood | |
| 3. | Fry Avenue, Cove Avenue, Nicholson Avenue |
| 4. | Bunts Road, Belle Avenue (Lakewood Park), Cook Avenue/Warren Road |
| 5. | Summit Avenue, Cranford Avenue/Westlake Avenue, Granger Avenue, Webb Road |
| 6. | West Clifton Boulevard and Sloane Avenue (regular bus stops) |

2.1.4.2 Detroit Avenue / Detroit Road

The #26 Detroit Avenue bus departs downtown Cleveland via the West Superior Avenue Bridge. It runs along Detroit Avenue through the Ohio City and Edgewater sections of Cleveland and the City of Lakewood, parallel to Clifton Boulevard.⁵ The #55B branch of the Cleveland State BRT line (see above) continues along Detroit Road through the center of Rocky River, a more interesting segment for potential TOD. For Task 1, the Detroit Avenue / Detroit Road corridor is divided into the following segments:

Table 5: Detroit Avenue/Detroit Road Bus Corridor Segments

| | |
|--------------------------------------|--|
| In Cleveland (Detroit Avenue) | |
| 1. | W. 25 th St. to W. 38 th St. (Hingetown) |
| 2. | W. 45 th St. to W. 54 th St. |
| 3. | W. 58 th St. to W. 70 th St. (Detroit Shoreway, Gordon Square) |
| 4. | W. 74 th St. to W. 89 th St. (West Eighties) |
| | • W. 91 st St. to W. 110 th St., including West Blvd. - Cudell Red Line Station (already included as part of Red Line) |
| 5. | W. 114 th St. (Cleveland) to Winchester Avenue (Lakewood) |
| In Lakewood (Detroit Avenue) | |
| 6. | Cove Avenue to Bunts Road (Lakewood municipal and civic) |
| 7. | Blossom Park/Manor Park Avenue to Elmwood Avenue (Lakewood business district) |
| 8. | Arthur Avenue to Cordova Avenue ⁶ |
| 9. | Webb Road to Matthews Avenue (last stop before Rocky River/City Line) |
| In Rocky River (Detroit Road) | |
| 10. | Wooster Road to Linda Street (Rocky River CBD) |
| 11. | Lakeview Avenue to Wagar Road (Rocky River High School) |

⁴ Several other bus routes use these segments of Superior and Chester Avenues for their downtown termini.

⁵ After crossing into Rocky River, the #26 leaves Detroit Avenue, traveling south on Wooster Road and west on Center Ridge Road to its terminus at Westgate Transit Center.

⁶ Wagar Avenue in Lakewood and Wagar Road in Rocky River are two separate and unrelated cross-streets.

2.1.4.3 Lorain Avenue / Lorain Road

The #22 Lorain Avenue bus departs downtown Cleveland via the West Superior Avenue Bridge, using Detroit Avenue and W. 25th St. to reach Lorain Avenue near the W. 25th St. Red Line Station. It then runs on Lorain Avenue, intersecting the Red Line at the W. 65th St. – Lorain (EcoVillage) station and West Park station. The #75 Lorain Avenue route begins at West Park Red Line Station and runs to the county line.⁷ The Task 1 TOD analysis includes the Lorain Avenue / Lorain Road corridor from Ohio City to Fairview Park, divided into the following station segments:

Table 6: Lorain Avenue / Lorain Road Bus Corridor Segments

| In Cleveland (Lorain Avenue): | |
|---------------------------------|--|
| • | <i>W. 25th St. Red Line Station (already included as part of Red Line)</i> |
| • | <i>W. 25th St. to W. 32nd St. (NC to match station; not separately numbered)</i> |
| 1. | Fulton Street to W. 50th St. (between Ohio City and W. 65th St. – Lorain Station) |
| • | <i>W. 65th St. – Lorain (EcoVillage) Red Line Station (already included as part of Red Line)</i> |
| 2. | W. 73rd St. to W. 85th St. (segment on north side of I-90) |
| 3. | W. 90th St. to W. 105th St. |
| 4. | W. 110th St. to W. 120th St. |
| 5. | W. 122nd St. to W. 134th St. |
| • | <i>W. 135th St. to West Park Red Line Station (already included as part of Red Line)</i> |
| • | <i>West Park Red Line Station (already included as part of Red Line)</i> |
| • | <i>West Park Red Line Station to W. 148th St.</i> |
| 6. | W. 150th St. /Warren Road to W. 165th St. (West Park neighborhood) |
| 7. | W. 168th St. to 176th St. (intersection of Rocky River Drive) |
| 8. | W. 178th St. to 18000 Lorain/Fairview Hospital (Rocky River crossing/City Line) |
| In Fairview Park (Lorain Road): | |
| 9. | Story Road to Wooster Road |
| 10. | W. 202nd St. to W. 210th St. |
| 11. | Clifford Drive to W. 223rd St. (Fairview Park center) |

2.1.4.4 W. 25th St. / Pearl Road / State Road

The #20 bus runs continuously on W. 25th St., Pearl Road, and State Road to Parma. From Ohio City to the MetroHospital South Campus in Old Brooklyn, the corridor is also served by the #35 and #51 bus routes.

Table 7: W. 25th St. / Pearl Road / State Road Bus Corridor Segments

| In Cleveland on W. 25 th St.: | |
|--|---|
| • | <i>Franklin Blvd. to Monroe Avenue, including W. 25th St. Red Line Station</i> |
| 1. | Potter Court to Vega Avenue (short industrial segment between Red Line and I-480) |
| 2. | Seymour Avenue to Holmden Avenue |
| 3. | Sackett Avenue to Daisy Avenue (MetroHealth Hospital complex) |
| In Cleveland on Pearl Road: | |
| 4. | Mapledale Avenue to Denison Avenue (Brooklyn Center, between I-71 and Zoo) |
| 5. | Wildlife Way (zoo entrance) to Pearl & State (MetroHealth Hospital South Campus) |
| In Cleveland on State Road: | |
| 6. | Colburne Avenue to Hillcrest Avenue (Old Brooklyn) |
| 7. | Biddulph Avenue to Wetzel Avenue (last segment north of I-480 and within Cleveland) |

⁷ Some #22 trips continue on Lorain west of West Park station, and the #49 Crocker Park bus runs on Lorain from West Park to Fairview Park. This outer portion of the corridor is thus served by multiple routes.

2.1.4.5 *Broadway Avenue / Turney Road*

The #19 Broadway Avenue and #76 Turney Road bus routes depart downtown at Tower City, travel past Quicken Loans Arena and Progressive Field, pass under I-90, and enter Broadway Avenue. Near the Cleveland/Garfield Heights city line, the #76 continues on Turney Road, the main street of downtown Garfield Heights. The TOD analysis segments are as follows:

Table 8: Broadway Avenue / Turney Road Bus Corridor Segments

| |
|--|
| In Cleveland, on Broadway Avenue: |
| <ol style="list-style-type: none"> 1. Progressive Field (Ontario & Carnegie) to 2400 Broadway Avenue <ul style="list-style-type: none"> • E. 30th St. to E. 37th St., including E. 34th St. – Campus Station (already included as part of Red, Blue, and Green Lines) 2. Trumbull Avenue to Dille Avenue (Industrial Valley; I-490-I-77 interchange) 3. Gallup Avenue to McBride Avenue (vacant St. Alexis Hospital site) 4. Barkwill Avenue to E. 65th St. (includes nodes at E. 55th St. and Union Avenue) 5. Aetna Road to Marble Avenue (Slavic Village) 6. Canton Avenue to Miles Avenue |
| In Cleveland, on Turney Road: |
| <ol style="list-style-type: none"> 7. Warner Road to Sladden Road/Grand Division Avenue (City Line) |
| In Garfield Heights, on Turney Road: |
| <ol style="list-style-type: none"> 8. Robinson Avenue to Dorothy Avenue 9. Garfield Boulevard to McCracken Road (downtown Garfield Heights, including High School) 10. Plymouth Avenue to Granger Road (Garfield Heights south of downtown) |

2.1.4.6 *Kinsman Road*

The #14 bus route departs Public Square via Prospect Avenue and E. 14th St., serves the Cuyahoga Community College Metro Campus district on Community College and Woodland Avenues, and then runs the length of Kinsman Road. The latter becomes Chagrin Boulevard at the Shaker Heights City Line and continues parallel to the Blue Line. The Priority Bus Corridor is the portion within the City of Cleveland.

Table 9: Kinsman Road Bus Corridor Segments

| |
|--|
| Downtown Cleveland: |
| <ol style="list-style-type: none"> 1. Prospect Avenue & Ontario St. to E. 14th St. & Carnegie |
| CCC Metro Campus area: |
| <ol style="list-style-type: none"> 2. Community College Avenue/E. 22nd St. to E. 30th St./Woodland Avenue |
| Woodland Avenue: |
| <ol style="list-style-type: none"> 3. E. 34th St. to E. 51st St. |
| Kinsman Road: |
| <ol style="list-style-type: none"> 4. Woodland Road/E. 55th St. to E. 62nd St. (short segment north of rail corridor) 5. E. 68th St. to E. 81st St. (intersecting Opportunity Corridor and E. 79th St.) 6. E. 90th St. to MLK Drive (intersecting E. 93rd St. TOD Plan) 7. E. 112th St. to E. 126th St. 8. E. 130th St. to E. 143rd St. (Mt. Pleasant business district) 9. E. 144th St. to E. 154th St. (Shaker Heights City Line) |

2.1.4.7 Cedar Road

The Cedar Road corridor is served by the #32 bus, which begins at the HealthLine on Euclid Avenue near University Circle, intersects the Red Line at Cedar - University Circle Station, and proceeds eastward into the Cities of Cleveland Heights, University Heights, South Euclid and Beachwood. The Priority Transportation Corridor extends to Belvoir Road in University Heights and is divided into the following segments for Task 1:⁸

Table 10: Cedar Road Bus Corridor Segments

| | |
|-------------------------------|--|
| In Cleveland: | |
| | <ul style="list-style-type: none"> • Cedar – University Circle Red Line Station (already included as part of Red Line) • Station to Euclid Heights Boulevard |
| In Cleveland Heights: | |
| | <ol style="list-style-type: none"> 1. Euclid Heights Boulevard to Demington Drive 2. Middlefield Road to Cottage Grove Avenue 3. Oakland Road to South Taylor Road (Cleveland Heights/University Heights City Line) |
| In University Heights: | |
| | <ol style="list-style-type: none"> 4. Thayne Road to 13809 Cedar Road 5. Fenwick Road to 14055 Cedar Road (University Heights center) 6. Miramar Boulevard to Belvoir Road |

2.1.4.8 Euclid Avenue Extension

The HealthLine terminates at Stokes – Windermere Station, which it shares with the Red Line. Currently, GCRTA runs the #28 bus route from Windermere out along Euclid Avenue to the City of Euclid. GCRTA recently studied extending the HealthLine along the East Cleveland segment of Euclid Avenue. For Task 1, the Euclid Avenue corridor east of Windermere is divided into the following segments:

Table 11: Euclid Avenue Bus Corridor Segments

| | |
|--|--|
| In East Cleveland:⁹ | |
| | <ul style="list-style-type: none"> • Stokes – Windermere Station (already included as part of Red Line) • Station to Lee Road / Wymore Road <ol style="list-style-type: none"> 1. Page Avenue to Collamer Road (East Cleveland civic center, Shaw High School) 2. Noble Road to Ivanhoe (City Line; includes Noble Road industrial lands, Nela Park) |
| In Cleveland: | |
| | <ol style="list-style-type: none"> 3. Victoria Road to London Road 4. Wayside Road/Torbenson Drive to E. 193rd St. |
| In Euclid, on Euclid Avenue | |
| | <ol style="list-style-type: none"> 5. E. 196th St. to Highland/Dille 6. Chardon Avenue to E. 222nd St. |
| In Euclid, on E. 222nd St.:¹⁰ | |
| | <ol style="list-style-type: none"> 7. Coulter Avenue to St. Clair Avenue (industrial lands between the railroads) 8. Miller Avenue to Tracy Avenue 9. Ball Avenue to Kennison Avenue (includes high school) 10. Seabrook Avenue to Babbitt/Lakeshore Boulevard (Downtown Euclid) |

⁸ The first outbound stops are located at or near the HealthLine on Euclid Avenue and the Cedar – University Red Line Station (already included as HealthLine and Red Line stations). Distinct Cedar Road stops begin just east of the Red Line station at the Cleveland/Cleveland Heights City Line.

⁹ The East Cleveland segments are also served by the #41-41F route, connecting to the Red Line at Windermere.

¹⁰ The existing #28 service splits at Euclid and E. 222nd St.; the 28A branch to Downtown Euclid is more significant for TOD purposes.

2.1.4.9 Five Points to Downtown Euclid

As part of its recent Red Line/HealthLine Extension Study, GCRTA examined potential future BRT improvements between Five Points, Lakeshore Boulevard, and Downtown Euclid. From Five Points, enhanced service could reach Lakeshore Boulevard either: (a) via E. 152nd St., Waterloo Road, and E. 156th St., or (b) via St. Clair Avenue and E. 185th St. Today, all of these potential routings have GCRTA bus service.¹¹ For Task 1, the following segments are based on existing bus stops:

Table 12: Five Points to Euclid Corridor Bus Segments

| In Cleveland, on E. 152 nd St./Waterloo Road/E. 156 th St.: | |
|---|---|
| 1. | Ivanhoe Road, from Euclid Avenue to Five Points |
| 2. | 900 E. 152 nd St. to Saranac Road (segment between Five Points and CSX) |
| 3. | E. 152 nd Avenue from Darwin Avenue to Sylvia Avenue (short segment between CSX and I-90) |
| 4. | Waterloo Road from E. 152 nd St. to E. 156 th St. (includes Waterloo Arts District) |
| 5. | E. 156 th St. from McCauley Avenue to Grovewood Avenue |
| In Cleveland, on Lakeshore Boulevard: | |
| 6. | E. 156 th St. to E. 171 st St. (including Collinwood Recreation complex) |
| 7. | 17570 Lakeshore to Maplecliff Road |
| E. 185 th St. in Cleveland and Euclid: ¹² | |
| 6A. | Underwood Avenue to Kildeer Avenue/Lasalle Road |
| 7A. | Arrowhead Avenue to Rosecliff Road |
| In Euclid, on Lakeshore Boulevard | |
| 8. | E. 185 th St. (City Line) to South Lakeshore Boulevard (medical/school complex) |
| 9. | E. 191 st St. to Ardwell Drive (segment between E. 185 th St. and E. 200 th St.) |
| 10. | E. 204 th St. to E. 216 th St. |
| 11. | E. 218 th St. to E. 232 nd St. (Downtown Euclid) ¹³ |

2.1.4.10 St. Clair Avenue

The #1 bus route runs the entire length of St. Clair Avenue, from Public Square to the GCRTA Euclid Park-and-Ride.

Table 13: St. Clair Avenue Bus Corridor Segments

| In Cleveland: | |
|---------------|--|
| 1. | Ontario St. to E. 13 th St. |
| 2. | E. 17 th St. to E. 26 th St. (segment west of I-90) |
| 3. | E. 30 th St. to E. 40 th St. |
| 4. | E. 45 th St. to E. 55 th St. |
| 5. | E. 60 th St. to E. 71 st St. |
| 6. | E. 72 nd St. to E. 82 nd St. /Ansel Road (segment west of MLK Drive) |
| 7. | E. 88 th St. to E. 100 th St. |
| 8. | E. 102 nd St. to E. 107 th St. (intersects E. 105 th St. TOD Corridor Plan) |
| 9. | Lakeview Road (Glenville High School) to E. 123 rd St. |
| 10. | Shaw Avenue split to E. 131 st St. (segment west of railroad) |
| 11. | E. 134 th St. to E. 147 th St. (in Collinwood, between railroad and Five Points) |
| 12. | E. 149 th St. to E. 154 th St. (Five Points center, Collinwood High School) |
| 13. | Stevenson Road to London Road (residential) |
| 14. | E. 165 th St. to E. 175 th St. (mixed industrial) |
| 15. | E. 179 th St. to 19115 St. Clair (mixed industrial/Nottingham Village) |
| In Euclid: | |
| 16. | Chardon Road to E. 222 nd St. (industrial/railroad) |
| 17. | 23000 St. Clair (Lincoln Electric) to Euclid Park-and-Ride/Babbitt Road (industrial/railroad) |

¹¹ The #30 and #39 on Lakeshore Boulevard; the #37 connecting Five Points, the Waterloo Arts District, and E. 185th St.; and the #39F running express on I-90 from E. 185th St. to Cleveland.

¹² From Underwood to Pawnee Avenue, E. 185th St. is entirely in the City of Cleveland. From Pawnee Avenue north to the Lake, E. 185th St. is the Cleveland/Euclid City Line.

¹³ Downtown Euclid is also served by the #28A service on E. 222nd St.; see the Euclid Avenue corridor above.

2.1.4.11 Suburban City or Town Centers in Cuyahoga County

The GCRTA Priority Bus Corridors listed in the preceding section include six suburban city centers within Cuyahoga County but outside the City of Cleveland. In each case, the segment of bus stops serving the center is included in the universe of stations for purposes of Task 1. The following are included:

Table 14: Suburban City Centers Included in Priority Bus Corridors

| City Center | Bus Corridor | Segment(s) |
|-----------------------|--|--------------------|
| A. Lakewood | Detroit Avenue / Detroit Road | 6-7 |
| B. Rocky River | Detroit Avenue / Detroit Road | 10 |
| C. Fairview Park | Lorain Avenue / Lorain Road | 11 |
| D. Garfield Heights | Broadway Avenue / Turney Road | 9 |
| E. East Cleveland | Red Line/Health Line Windermere; adjoining Health Line, Euclid stops | Segments adjoining |
| F. University Heights | Cedar Road | 5 |
| G. Euclid | Euclid Avenue; Lakeshore | 10 |

2.1.5 Suburban Centers Outside of Cuyahoga County

At NOACA's specific recommendation, the a set of suburban center locations outside Cuyahoga County are included in the Task 1 universe of stations. These are understood to represent a variety of such locations within the NOACA region's four outlying counties, including Laurel Square in Medina. This larger category of locations will be addressed in the programmatic discussions of Tasks 2 and 3. The three locations included in Task 1 are:

Table 15: Suburban Centers Outside Cuyahoga County

| Suburban Transit Center | City (County) | Transit Service |
|----------------------------|--------------------|--|
| Lakeland Community College | Kirtland (Lake) | Laketran Routes 1, 2, 3, 6, 11 |
| Downtown Painesville | Painesville (Lake) | Laketran Routes 1, 5 |
| Downtown Elyria | Elyria (Lorain) | Amtrak; Lorain Co. Transportation Center; Lorain Co. Transit Routes 51, 52 |

2.2 Summary

The stations, station clusters (light rail and HealthLine), and Priority Bus Corridor segments analyzed in Task 1 are as summarized below.

Table 16: Summary of Stations, Clusters, and Segments

| Line | Number of Stations / Station Clusters / Segments |
|---|--|
| Rail and HealthLine | |
| Red Line | 18 |
| Rapid Light Rail (unique; not shared with Red Line) | 17 |
| HealthLine (unique; not shared with Red Line) | 7 |
| Total Rail and HealthLine | 42 |
| Bus Corridors | |
| Cleveland State Line | 6 |
| Detroit Avenue / Detroit Road | 11 |
| Lorain Avenue / Lorain Road | 11 |
| W. 25 th St. / Pearl Road / State Road | 7 |

| Line | Number of Stations / Station Clusters / Segments |
|--|--|
| Broadway Avenue / Turney Road | 10 |
| Kinsman Road | 9 |
| Cedar Road | 6 |
| Euclid Avenue | 10 |
| Five Points to Downtown Euclid | 12 |
| Saint Clair Avenue | 17 |
| <i>Total Bus Corridors</i> | 99 |
| Suburban Centers | |
| On GCRTA Priority Bus Corridors (included above) | 7 |
| Outside Cuyahoga County | 3 |

2.3 Categorization of Stations for Readiness Analysis

Our data approach for the different types of stations, clusters, and segments is based on two variables:

- the TOD catchment areas or “zones of influence” typically associated with the various transit modes; and
- a level of analysis (in terms of the types of data considered) that reflects the size, complexity, and likely impact of the transit setting. These assessments are based on similar projects and on industry standard practice.

Table 17: Typical TOD Catchment Areas by Mode (in order of declining degree of influence)

| Transit Mode | Catchment Area |
|-------------------------|----------------|
| Heavy Rail | ½ mile |
| LRT (Main Trunk) | ½ mile |
| LRT (Branches) | ¼ mile |
| BRT | ¼ mile |
| Traditional Bus | ¼ mile |

Table 18: Proposed Levels of Analysis

| Level of Detail | Category |
|-----------------|----------|
| High | A |
| Medium | B |
| Low | C |

Table 19: Summary – Crosstab of Proposed Levels of Analysis to Station Area Radii

| Level of Analysis | ½ Mile Catchment | ¼ Mile Catchment |
|-------------------|------------------|------------------|
| High | A | |
| Medium | B | B |
| Low | | C |

Table 20: Analysis Plan by Station/Segment

| Mode/Line | Analysis Level | Catchment Area | Number of Stations / Station Clusters / Segments |
|---|----------------|----------------|--|
| Rail | | | |
| Red Line | A | ½ mile | 18 |
| LRT | | | |
| Rapid Light Rail – Trunk Line (excluding joint stations with Red Line) | B | ½ mile | 4 |
| Rapid Light Rail – Blue Line ¹ | C | ¼ mile | 5 |
| Rapid Light Rail – Green Line | C | ¼ mile | 4 |
| Rapid Light Rail – Waterfront Line | B | ½ mile | 4 |
| BRT | | | |
| HealthLine (excluding joint stations with Red Line) | B | ¼ mile | 10 |
| Bus Corridors ² | | | |
| Cleveland State Line | C | ¼ mile | 8 |
| Detroit Avenue / Detroit Road | C | ¼ mile | 14 |
| Lorain Avenue / Lorain Road | C | ¼ mile | 12 |
| W. 25th St. / Pearl Road / State Road | C | ¼ mile | 12 |
| Broadway Avenue / Turney Road | C | ¼ mile | 11 |
| Kinsman Road | C | ¼ mile | 11 |
| Cedar Road | C | ¼ mile | 6 |
| Euclid Avenue | C | ¼ mile | 9 |
| Five Points to Downtown Euclid | C | ¼ mile | 12 |
| Saint Clair Avenue | C | ¼ mile | 17 |
| Suburban Centers | | | |
| On GCRTA Priority Bus Corridors (included above) | C | ¼ mile | 6 |
| Outside Cuyahoga County | B | ¼ mile | 3 |

¹ Exception: the Blue Line terminal station at Van Aken / Warrensville, where major redevelopment is planned (the Van Aken District), will be Category B, ½ mile.

3 TOD Analysis Metrics

3.1 Evaluation Data Categories

The project team compiled two sets of data for Task 1: one set to support the definition of Place Typology categories and assignment of stations to these categories (as defined in the preceding Section 3 of this report); and a second set to support measuring each station’s current TOD Readiness with respect to its typology category. Data for each station is primarily quantitative, with additional insight provided through qualitative review of conditions based on observation from in person fieldwork and desktop scanning via mapping tools and input from regional stakeholders and planners.

Table 21: Data Plan - Metrics by Station Category

| Station Category | Place Typology Data | Readiness Scoring Data |
|------------------|---|--|
| A | <ul style="list-style-type: none"> • QN: Land use (acreage by use) • QL: Plan documents | <ul style="list-style-type: none"> • QN: Population density (current and LR forecast) • Employment density (current and LR forecast) • QN: HH density (current and LR forecast) • QN: Median HH Income (current and LR forecast) • QN: Median Housing Price (<i>current</i>) • QN: Comm'l Rent psf (<i>current</i>) • QN: Affordable housing (# DU and % of region) (<i>current and LR forecast</i>) • QN: Ridership (current) • QN: Publicly owned land (acreage by owner) • QN: Park and ride spaces • QN: Built square feet • QN: Vacant land (acreage) <ul style="list-style-type: none"> ○ Nbr vacant parcels > 5 acres • QN: Zoning • QL: Survey/Field/Desktop <ul style="list-style-type: none"> ○ Destinations ○ Barriers ○ Connectivity ○ Market Activity |
| B | <ul style="list-style-type: none"> • QN: Land use (acreage by use) • QL: Plan documents | <ul style="list-style-type: none"> • QN: Population density • QN: Employment density • QN: HH density • QN: Ridership • QN: Publicly owned land (acreage by owner) • QN: Vacant land (acreage) <ul style="list-style-type: none"> ○ Nbr vacant parcels > 5 acres • QN: Zoning • QL: Survey/Field/Desktop |

| Station Category | Place Typology Data | Readiness Scoring Data |
|------------------|---|---|
| | | <ul style="list-style-type: none"> ○ Destinations ○ Barriers ○ Connectivity ○ Market Activity |
| C | <ul style="list-style-type: none"> • QN: Land use (acreage by use) • QL: Plan documents | <ul style="list-style-type: none"> • QN: Population density • QN: Employment density • QN: HH density • QN: Ridership • QL: Survey/Field/Desktop <ul style="list-style-type: none"> ○ Barriers ○ Connectivity |

QN = quantitative evaluation
QL = qualitative evaluation

Spreadsheets containing all of the data described above, organized by station category and line, are included in Appendix 1 of this report.

4 TOD Place Typology

A Place Typology framework allows for the organization of transit stations into distinct categories differentiated by location, connectivity, land use, urban form, and intensity, to understand commonalities and differences across a system for planning and design purposes.

4.1 Place Typology Categories across the NOACA Region

NOACA's TOD Place Typology includes seven categories defined according to a set of qualitative and quantitative descriptors, including population, employment, ridership, land use, function, and form. The categories are not hierarchical; TOD can take a variety of equally valid forms based on local conditions and preferences. And as explained earlier, the categories are both descriptive and aspirational. These categories are defined as:

Metro Core
Town Center
Neighborhood Center
Main Street

Neighborhood Residential
Industrial/Transitional
Special Destination

4.1.1 Metropolitan Core

- The "dual hub": downtown and University Circle, and the corridor connecting them (including the Midtown and Health Corridor districts)
- The region's highest density development and most diverse mix of uses
- New residential development to balance employment, civic, and institutional concentrations
- GCRTA's highest ridership as the hub of a "hub and spoke" network



HealthLine BRT – segment 1



Waterfront Rapid LRT – Flats East Bank station, Dimit Arch. (photo source: Cleveland.com)

4.1.2 Town Center

- The downtown center of a municipality other than the City of Cleveland
- A concentration of dense, mixed-use development, relative to its surroundings
- In most cases, a combination of civic, commercial, and multi-family uses
- Residential neighborhoods surround the core
- A transit destination, as well as a source of commuting trips to the Metropolitan Core



Broadway / Turney Road Bus Corridor – segment 6, Garfield Heights



*Detroit Bus Corridor - Segments 6-7, downtown Lakewood
(photo source: Lakewood Alive)*



Euclid Ave. Bus Corridor - Segment 10, downtown Euclid

4.1.3 Neighborhood Center

- A node of mixed-use development, centered on an important transit and roadway crossroads
- In most cases, a combination of civic, commercial, and multi-family uses at the center
- Residential neighborhoods surround the core
- Commercial uses are generally neighborhood scale but may also include regional destinations
- A transit destination, as well as a source of commuting trips to the Metropolitan Core



Red Line - W. 25th St. Station



Lorain Avenue Bus Corridor – segment 7, Kamm's Corners



Detroit Bus Corridor - Segment 3, Gordon Square (photo source: Detroit Shoreway CDO)



Kinsman Bus Corridor - Segment 8, Mt. Pleasant Village (image source: Kinsman TLCI)

4.1.4 Main Street

- A mixed-use linear corridor typical of Cleveland's traditional streetcar and bus routes
- Similar composition to Neighborhood Centers, but elongated; less defined by a single crossroads
- Existing fabric consists largely of neighborhood scale commercial and "shops above stores"
- Vacant lots provide opportunity for infill development, whether housing or employment
- Transit provides a radial connection to the Metropolitan Core



Five Points to Euclid Bus Corridor – segment 6A, E. 185th St.



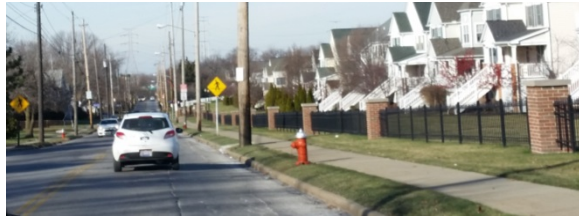
Lorain Bus Corridor - Segment 1, Lorain & Randall



*Five Points to Euclid Bus Corridor - E. 185 St.
(image source: GCRTA, rendering by AECOM)*

4.1.5 Neighborhood Residential

- A linear residential corridor typical of Cleveland's traditional streetcar and bus routes
- Lined by single- or multi-family housing, with minor commercial interruptions, if any
- Infill opportunities are usually residential
- Transit provides a radial connection to the Metropolitan Core



Broadway / Turney Road Bus Corridor – segment 7, Warner Road to Grand Division Avenue



Blue Line LRT

4.1.6 Industrial/Transitional

- Extensive area of existing or former industrial use
- Transit use by workforce may depend on shift hours, degree of walkability
- Long-range planning required for future uses: industrial, R&D, technology, or mixed-use redevelopment



Red Line - W. 117th – Madison Station



Red Line - W. 117th – Madison Station



Red Line - Brookpark Station



*Five Points to Euclid Bus Corridor - Euclid Ave. at Ivanhoe Rd.
(image source: GCRTA, rendering by AECOM)*

4.1.7 Special Destination

- A single or predominant use (other than residential or industrial)
- May be a significant transit trip generator, but not in the form of traditional mixed-use TOD



Red Line - Airport Station (photo source: Cleveland Hopkins Airport)



W. 25th St. / Pearl / State Corridor - Segment 3, MetroHealth (photo source: Pearl/W. 25th St. TLCI)

4.2 Summary of Place Typology Assignments

This section provides a summary of Place Typology assignments across the NOACA system and universe of stations, shown in chart and map format.

Figure 2: Summary of Place Typology Assignments, Number of Stations by Category

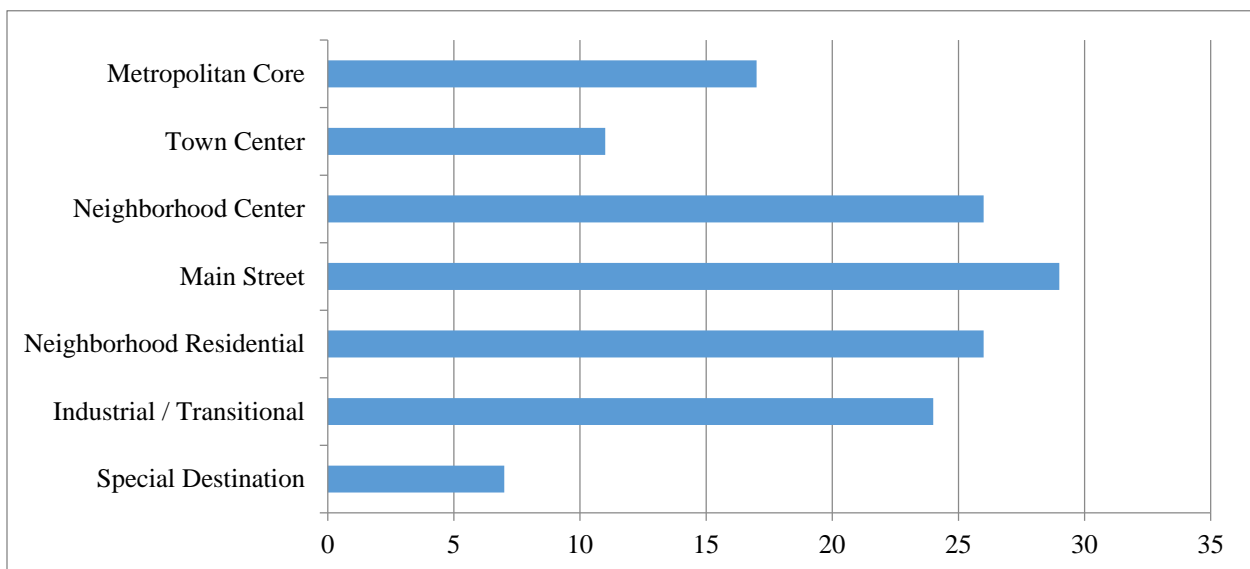


Figure 3: Summary of Place Typology Assignments, Number of Stations by Transit Mode and Category

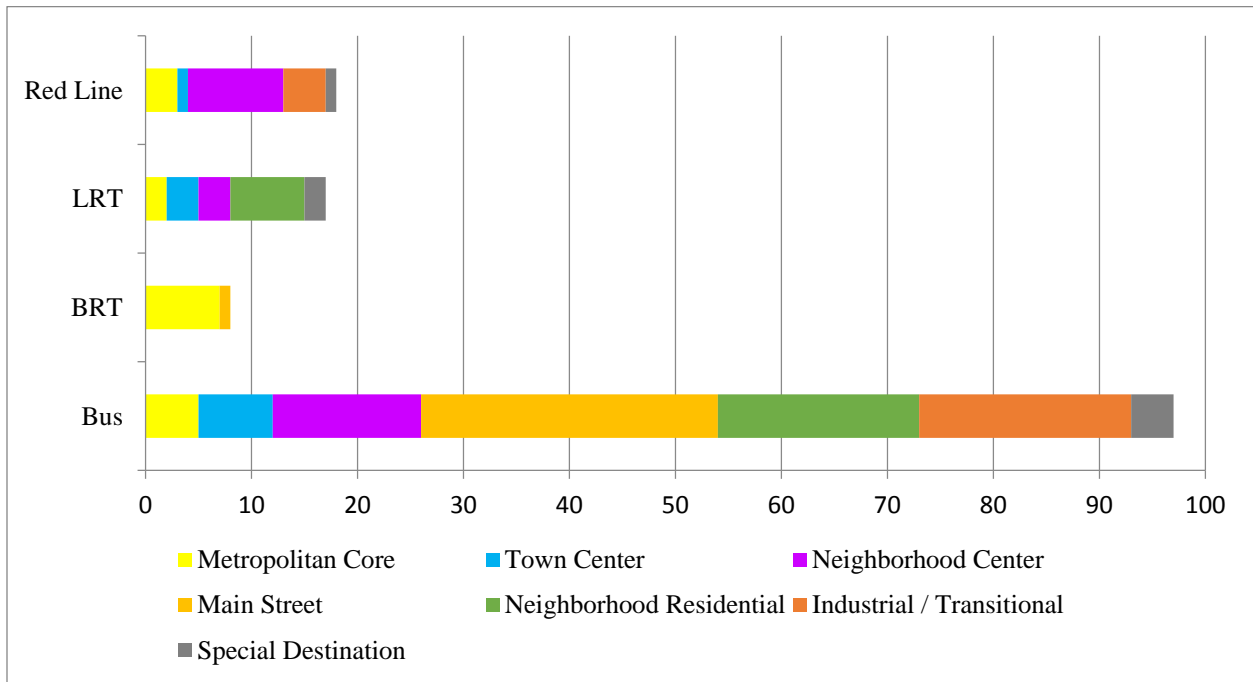


Figure 4: Place Typology Map: Rail Network

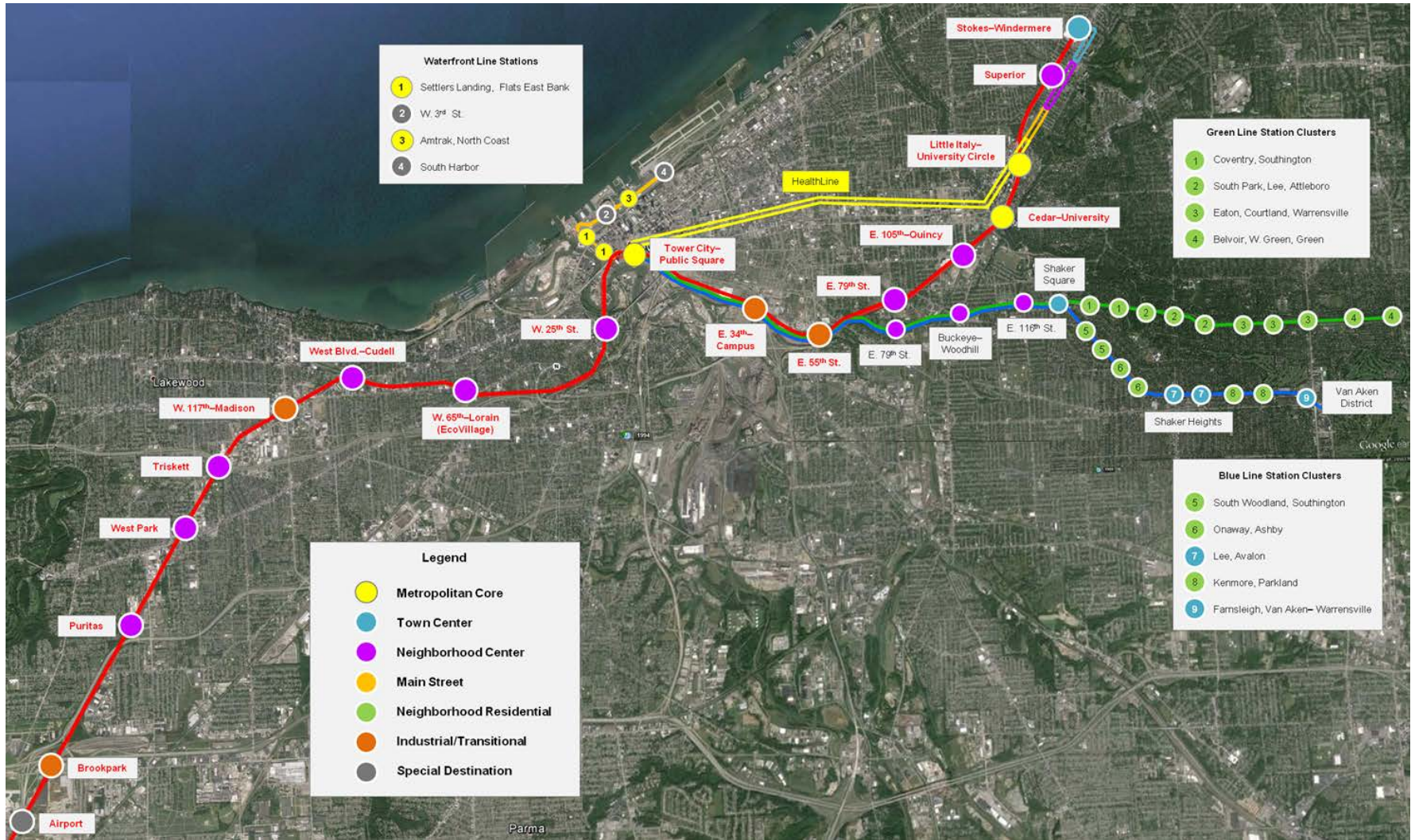
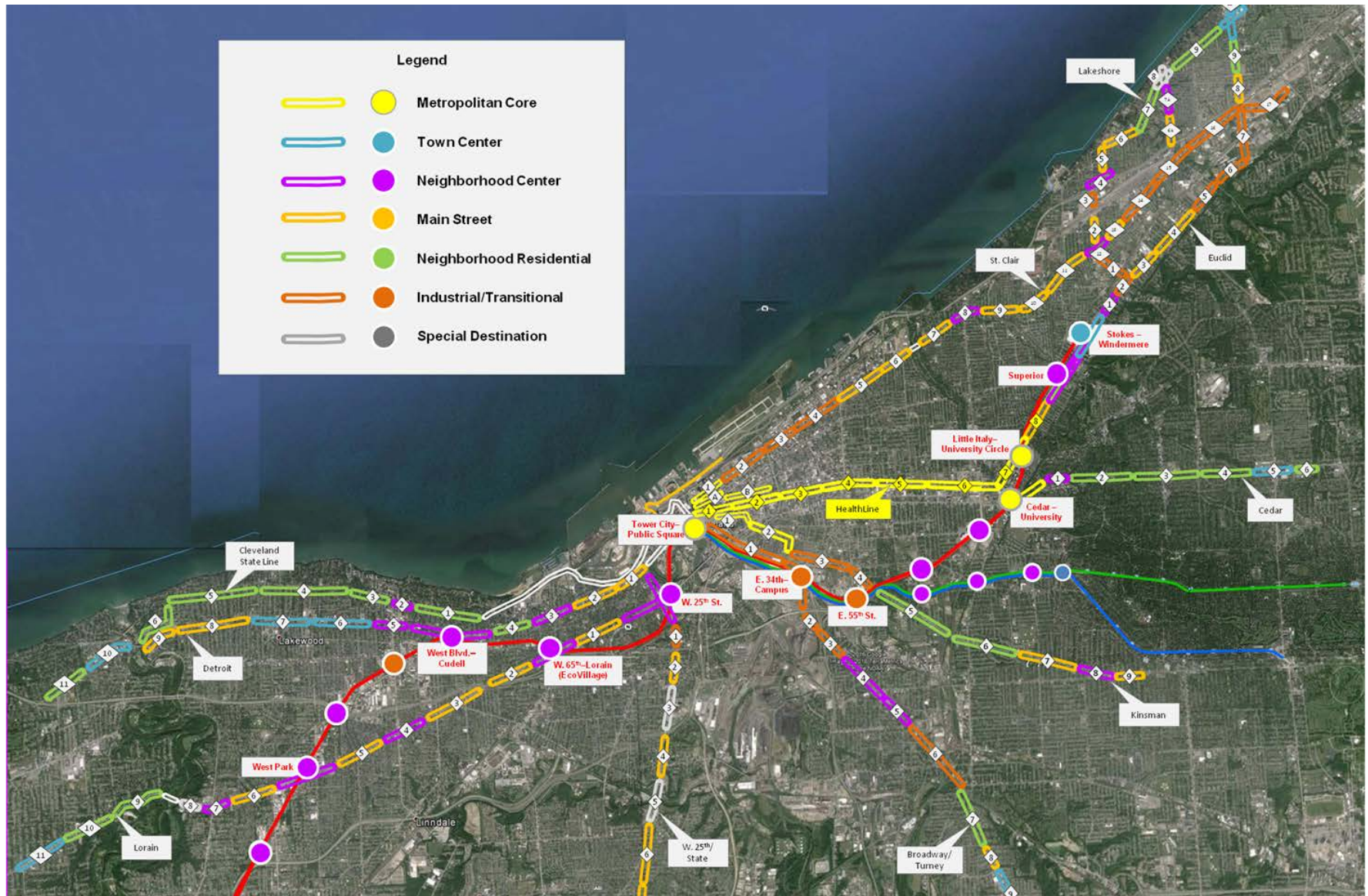


Figure 5: Place Typology Map: Bus Network



5 TOD Readiness Scorecard

The TOD Readiness Score summarizes how far a station has progressed toward its full TOD potential and how far it has to go. Unlike the TOD Place Typology described in the previous section, a station’s TOD Readiness Score can—and hopefully will—change over time, as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has four levels.

- Long-Term – exhibiting few of the place typology characteristics.
- Emerging – beginning to demonstrate some of the place typology characteristics.
- Ready – showing place typology characteristics in much of the station area, but with gaps that can reasonably be expected to be closed.
- Arrived – demonstrating place typology characteristics in much of the station area, particularly at the primary corners or areas adjacent to the stations, with some opportunity for continued infill or redevelopment.

A station area that has attained few or none of its Place Typology characteristics receives a score of “Long-Term”—it has the longest way to go to the other end of the scale. In contrast, a station area that is already demonstrating TOD results consistent with its Place Typology character gets a score of “Arrived”. Those that are in between are either “Emerging” or “Ready”.

5.1 Score Components

The Readiness Score is a composite of four Subscores, each representing a distinct dimension of TOD Readiness:

- Connectivity—how well the station is connected to its surroundings and to other parts of the transportation network.
- Market Strength—how the real estate market is performing in the station area.
- Land Availability—the extent to which the station area has vacant and underutilized land which could be developed or redeveloped.
- Government support—the degree of to which the relevant jurisdictions provide planning, regulatory, and infrastructure support for TOD.

5.1.1 Connectivity

The Connectivity SubScore measures how well the station is connected to its surroundings and to other parts of the transportation network. It contains five potential metrics.

Table 22: Connectivity Metrics

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|----------------------------------|--|---|--------------------|--------------------|--------------------|
| Daily Ridership | Current average weekday ridership. | Low = <50% Projected Ridership for Place Typology Med = 50-75% Projected Ridership High = > 75% Projected Ridership | X (not I/T, SD) | X (not I/T, SD) | X (not I/T, SD) |
| Labor Market Connectivity | Qualitative assessment of jobs accessed by a one-seat ride, crediting stations with multiple | Low = Non-radial bus corridor Medium = Radial bus corridor, Red Line rail, or Health Line | X | X | X |

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|------------------------------|---|--|-------|-------|-------|
| | premium transit services with higher. | BRT High = Multi-modal / multi-line service | | | |
| Mode Efficiency | Qualitative assessment of efficiency of connectivity based on mode. | Low = Bus Medium = BRT/LRT High = Red Line rail | X | X | X |
| Ped/Bike Connectivity | Extent of continuous sidewalk presence; will take into account any major pedestrian barriers in addition to missing sidewalks. Addresses ADA accessibility | Low = Major gaps, major presence of poor condition; significant accessibility barriers Medium = Some gaps, some presence of poor condition; occasional accessibility barriers High = Few-to-zero gaps, little presence of poor condition; few-to-zero accessibility barriers | X | | |
| Highway Connectivity | Qualitative assessment of highway network access to station; this favors stations at a highway interchange or with direct cross-street access to one; stations with cross-streets connecting to multiple radial highways or major arterials, especially if the cross-street is a major bus corridor; etc. | Low = No access to highway interchange or radial/cross-town arterial within 1 mile Medium = Indirect access to highway interchange or major arterial within 1 mile High = Direct access to highway interchange, major arterial | X | X | X |

5.1.2 Market Strength

The Market Strength SubScore measures how the real estate market is performing in the station area. It contains up to seven metrics.

Table 23: Market Strength Metrics

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|--|---|--|---------------|---------------|---------------|
| Station Area Population [Density] | Current population density, relative to density for place typology (measured against lower bound of range) | Low = <50% Projected Pop Density for Place Typology Med = 50-75% Projected Pop Density High = > 75% Projected Pop Density | X (not SD) | X (not SD) | X (not SD) |
| Station Area Employment [Density] | Current employment density, relative to density for place typology (measured against lower bound of range) (This is “jobs on the ground” within ½ mile of the specific station, rather than the FTA “one-seat ride”; the latter is captured in Labor Market Connectivity above.) | Low = <50% Projected Empl Density for Place Typology Med = 50-75% Projected Empl Density High = > 75% Projected Empl Density | X | X | X |
| Development Activity | A qualitative rating reflecting actual projects underway, recently completed, or deep in the | Low = No projects reflective of Place Typology Med = 1-5 small/medium | X | X | |

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|--|--|---|--------------------|-------|-------|
| | entitlement process. Use CoStar activity levels as proxy for Development Activity and professional knowledge of the station area (Strong Development Activity indicates rent levels that “pencil out”, but absence of Development Activity does not necessarily indicate the reverse.) | projects High = 5+ small/medium projects or 3+ large projects | | | |
| Residential Submarket Performance | CoStar for sector performance (trend or submarkets vs. metro). Average of vacancy rates, sale price, rental price, supply growth, measured on 5 year trends. | Low = Local rates 25% or worse than regional rates or insufficient data Med = equal to or within 25% of regional rates High = equal to or better than regional rates | X (not I/T, SD) | | |
| Retail Submarket Performance | CoStar for sector performance (trend or submarkets vs. metro). Average of vacancy rates, rental price, supply growth, measured on 5 year trends. | Low = Local rates 25% or worse than regional rates, or insufficient data Med = equal to or within 25% of regional rates High = equal to or better than regional rates | X (not I/T, SD) | | |
| Office Submarket Performance | CoStar for sector performance (trend or submarkets vs. metro). Average of vacancy rates, rental price, supply growth, measured on 5 year trends. | Low = Local rates 25% or worse than regional rates, or insufficient data Med = equal to or within 25% of regional rates High = equal to or better than regional rates | X (not I/T, SD) | | |
| Industrial Office Submarket Performance | CoStar for sector performance (trend or submarkets vs. metro). Average of vacancy rates, rental price, supply growth, measured on 5 year trends. | Low = Local rates 25% or worse than regional rates, or insufficient data Med = equal to or within 25% of regional rates High = equal to or better than regional rates | X (I/T) | | |

5.1.3 Land Availability

The Land Availability SubScore measures the extent to which the station area has vacant and underutilized land which could be developed or redeveloped. It contains three potential metrics.

Table 24: Land Availability Metrics

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|--------------------------|---|--|-------|-------|-------|
| Developable Sites | This will reflect the presence of vacant or underutilized sites, or surface parking (identified from zoning), above a threshold land area of 5 acres. | Low = No sites of significant size Med = 1-5 small/medium sites High = 2+ medium/large sites or 1 extra-large projects | X | X | |

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|----------------------------|---|---|-------|-------|-------|
| Publicly owned land | This will reflect public ownership (tax exempt and land banked) of large contiguous land areas that could be intensified or developed. Quantitative totals vetted against visual survey to eliminate unchanging public campuses. May double-count transit property. | Low = < 50 acres potentially available for spinoff Med = 50-74 acres High = >75 acres | X | X | |
| Transit property | Park and ride, kiss and ride, bus turnaround, other facilities that could be reconfigured to accommodate other activity. | Low = < 5 acres of surface parking Med = 5-10 acres High = >10 acres | X | | |

5.1.4 Government Support

The Government Support SubScore measures the degree of to which the relevant jurisdictions provide planning, regulatory, and infrastructure support for TOD. It contains three metrics.

Table 25: Government Support Metrics

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|--|--|---|-------|-------|-------|
| Zoning | This will reflect the extent (<i>Low</i> , <i>Medium</i> , or <i>High</i>) to which land use controls (e.g., zoning, subdivision ordinances) support TOD. The ranking will take into account density, allowing mixed-use as-of-right, urban form elements, and flexibility on parking. | Low = Zoning is not significantly mixed use, FAR > 1 and/or high density of residential units; prescriptive parking minima (e.g., 1+ spaces/unit or suburban-style commercial requirements) Med = Zoning closest to the station/stop is significantly mixed use, FAR > 1 and/or high density residential units, with decreases further out; default score for I/T or SD typology stations (instead of NA) High = Zoning across station area is significantly mixed use, FAR > 1 and/or high density of residential units; stipulations on shared use parking or no parking requirements | X | X | |
| District or Other Special Plans | In the absence of any District or other special plan that supports a TOD-consistent outcome, this will be <i>Low</i> . If there is such a plan, it will be <i>Medium</i> or <i>High</i> depending on content. Source will be TLCI plans; CDC/neighborhood plans; and the Opportunity Corridor. | Low = There are no plans supporting transit-oriented development or emphasizing transit, or plans exist but advocate for low density land uses. Medium = Plans indirectly or moderately support transit-oriented development or only in a subset of the station area. High = Comprehensive plan, neighborhood, district or other small area plans directly and strongly supports transit-oriented development. | X | X | X |
| Infrastructure | Qualitative assessment of degree to which basic TOD infrastructure | Low = Basic TOD infrastructure is mostly lacking and not planned. | X | | |

| Metric | Description | Scoring Criteria | Cat A | Cat B | Cat C |
|--------|--|---|-------|-------|-------|
| | <p>is in place, not yet in place but funded, or neither. This may overlap but not duplicate the “Ped/Bike Continuity” metric (sidewalks) above.</p> <p>It covers more than sidewalks, depending on the setting (street grid, bike lanes, lighting, open space, etc.); and if there is a funded plan to build missing sidewalks, it could contribute to a higher score even if the absence of sidewalks today causes a <i>Low</i> on Ped/Bike Continuity.</p> | <p>Medium = Basic TOD infrastructure is somewhat lacking but improvements are planned.</p> <p>High = Basic TOD infrastructure is present; additional improvements may be planned.</p> | | | |

5.2 Scoring

These SubScores and component metrics are described below. The individual metrics are scored Low / Medium / High and are equally weighted, so that they can be added for SubScore and overall Readiness composite scores.

As noted in Section 5.1, the metrics, and therefore, possible scoring ranges, vary according to the stations categorized in study’s data plan and universe of stations discussed in Sections 2 and 3, based on the level of examination proposed in those sections. The greatest volume of data is collected for Category A stations, which enables the most robust evaluation of readiness. Category B stations receive a moderate level of data, and with a modest evaluation of readiness. Category C stations collect the least data, and therefore the most cursory assessment of readiness.

Table 26: Number of Metrics Used

| SubScore Category | Individual Metrics in Each SubScore Category | | |
|---------------------------|--|-----------------------------|---------------------|
| | Category A Stations | Category B Stations | Category C Stations |
| Connectivity | 4 – 5 depending on typology | 3 - 4 depending on typology | 4 |
| Market Strength | 2 – 6 depending on typology | 2 - 3 depending on typology | 2 |
| Land Availability | 3 | 2 | 0 |
| Government Support | 3 | 2 | 1 |
| Total Metrics | 12-17 | 9-11 | 7 |

Appendix 1 contains the detailed scorecards for each line, including notation of relevant metrics and calculation of the minimum and maximum possible points for each station or station cluster, along with the ranges for the four Readiness Score stages of Long-Term/Emerging/Ready/Arrived along the TOD Readiness continuum.

5.3 Additional Consideration

The data-driven approach for readiness scoring defined in this study is useful because it provides a structured, consistent, defensible, repeatable process for measurement. However well the scoring framework and benchmarks are defined, though, occasionally the resulting score for an individual station “doesn’t feel quite right” based on a professional planner’s familiarity with the station area – either

viewed individually or in comparison to other stations' scores. An *Adjustment Factor* field is provided in the Scorecard tool to allow for addition or subtraction of points to account for additional information about a station area that is “more art than science.”

5.4 Summary of Readiness Scores

Summary of Place Typology assignments, Readiness Scores and metric SubScores are summarized in this section by Line.

Figure 6: Summary of Readiness Scores, Number of Stations by Stage

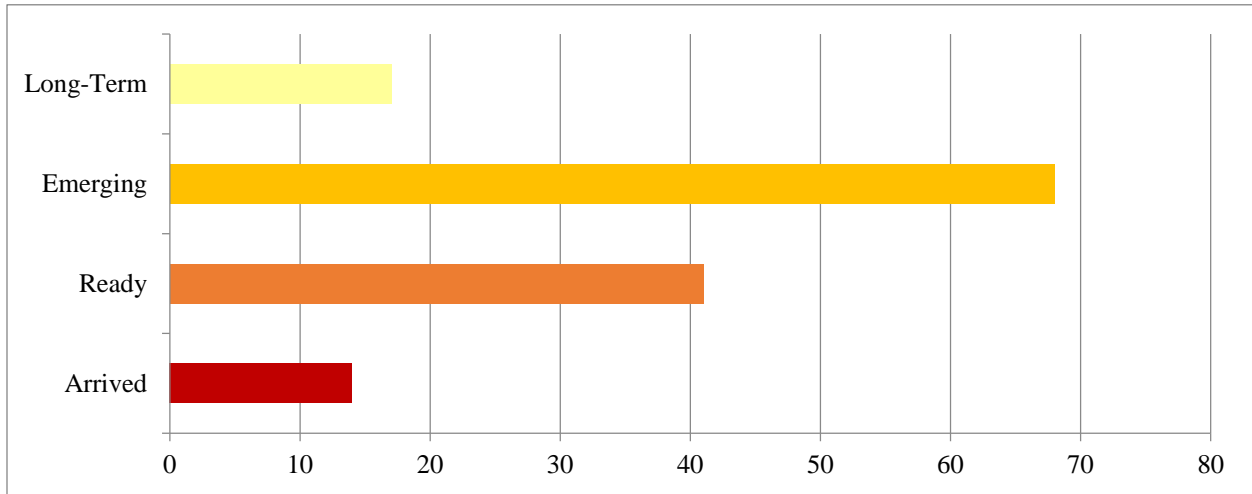


Figure 7: Summary of Readiness Scores, Number of Stations by Mode and Stage

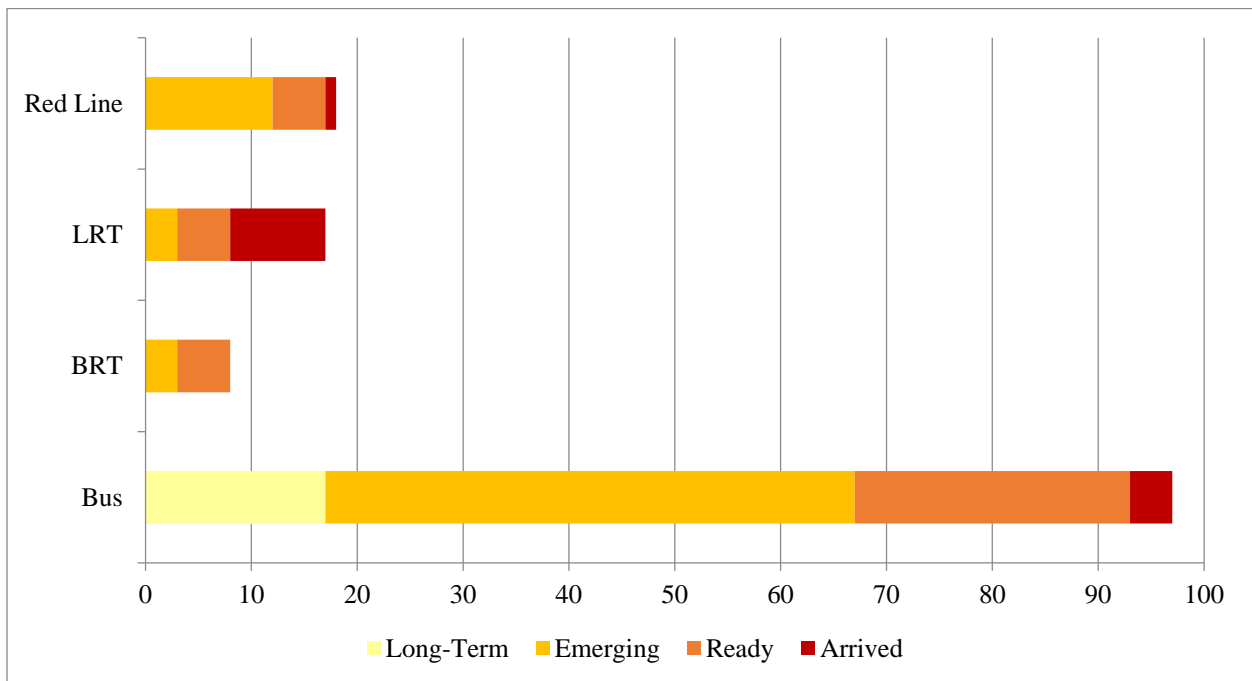


Figure 8: Readiness Score Map: Rail Network

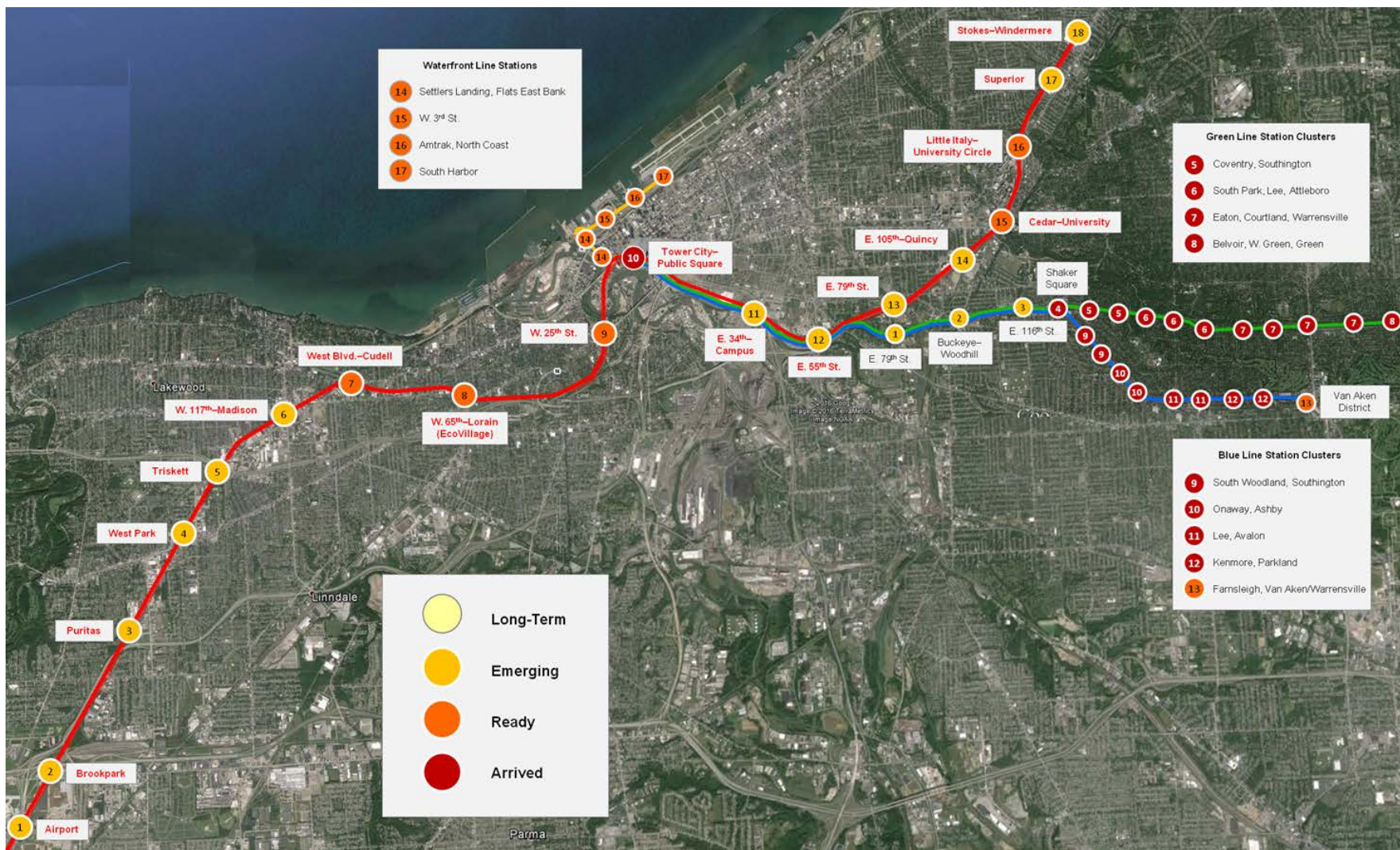
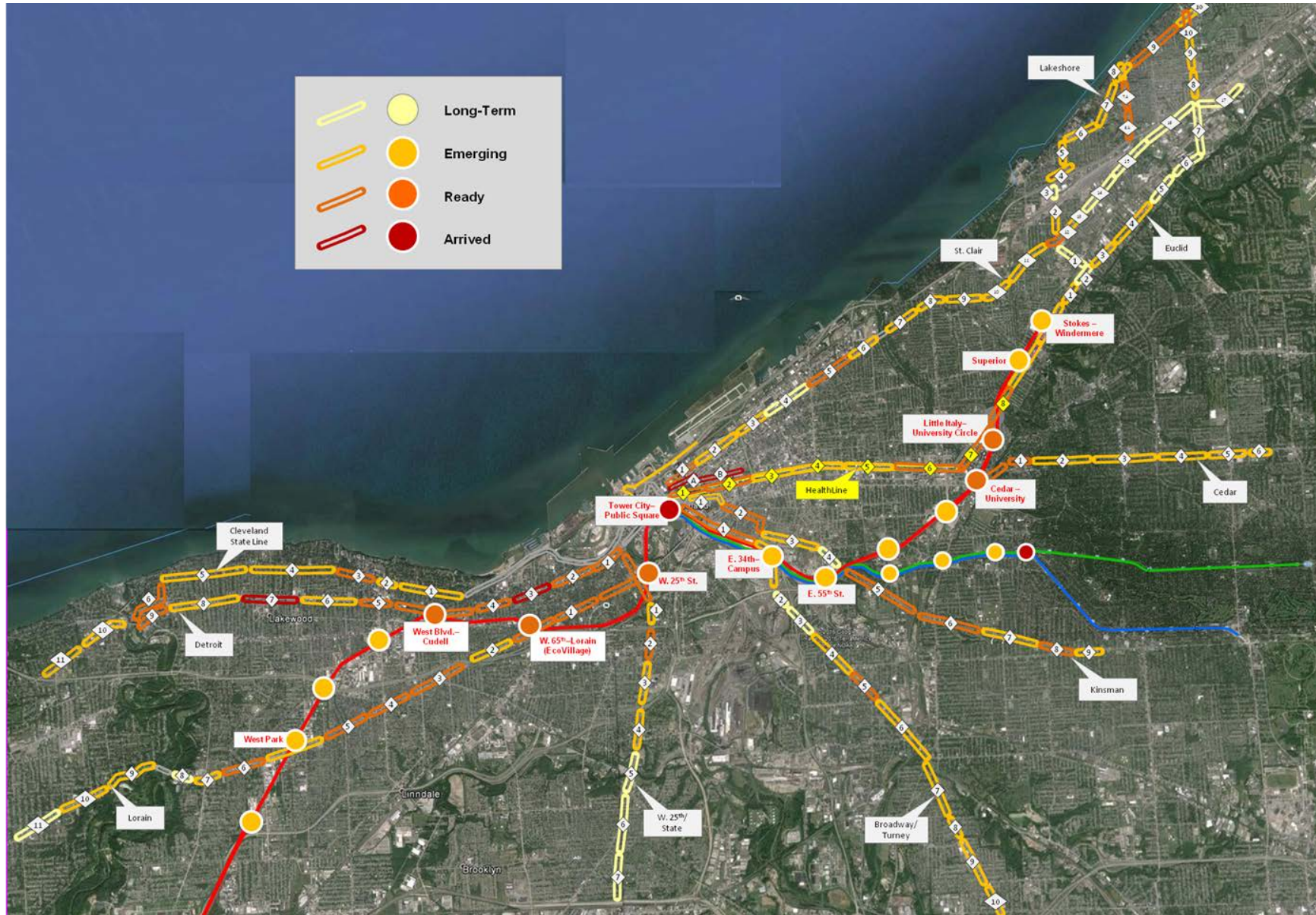


Figure 9: Readiness Score Map: Bus Network



6 Summary

6.1.1 Red Line Rail

Table 27: Summary, Red Line Rail

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--------------------------------------|----------------|-------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. Airport | Cleveland | Special Destination | Emerging | Medium | Low | Low | Medium |
| 2. Brookpark | Cleveland | Industrial/Transitional | Emerging | High | Medium | Medium | Low |
| 3. Puritas | Cleveland | Neighborhood Center | Emerging | High | Medium | Low | Medium |
| 4. West Park | Cleveland | Neighborhood Center | Emerging | Medium | Medium | Low | Medium |
| 5. Triskett | Cleveland | Neighborhood Center | Emerging | High | Medium | Low | Medium |
| 6. W. 117th St. – Madison | Cleveland | Industrial/Transitional | Emerging | Medium | Medium | Low | Medium |
| 7. West Blvd. – Cudell | Cleveland | Neighborhood Center | Ready | High | Medium | Medium | Medium |
| 8. W. 65th – Lorain (EcoVillage) | Cleveland | Neighborhood Center | Ready | High | Medium | Medium | Medium |
| 9. W. 25th St. | Cleveland | Neighborhood Center | Ready | High | Medium | Medium | High |
| 10. Tower City – Public Square | Cleveland | Metropolitan Core | Arrived | High | Medium | Medium | Medium |
| 11. E. 34th – Campus | Cleveland | Industrial/Transitional | Emerging | High | Medium | Medium | Low |
| 12. E. 55th St. | Cleveland | Industrial/Transitional | Emerging | High | Low | Medium | Low |
| 13. E. 79th St. | Cleveland | Neighborhood Center | Emerging | Medium | Low | Medium | Medium |
| 14. E. 105 th – Quincy | Cleveland | Neighborhood Center | Emerging | Medium | Medium | Medium | Medium |
| 15. Cedar – University | Cleveland | Metropolitan Core | Ready | High | Medium | Medium | High |
| 16. Little Italy – University Circle | Cleveland | Metropolitan Core | Ready | High | Medium | Medium | High |
| 17. Superior | East Cleveland | Neighborhood Center | Emerging | Medium | Medium | Medium | Medium |
| 18. Stokes – Windermere | East Cleveland | Town Center | Emerging | Medium | Medium | Medium | Medium |

6.1.2 Green, Blue, and Waterfront Lines (The Rapid Light Rail System)

6.1.2.1 Trunk Line LRT

Table 28: Summary, Trunk Line LRT

| Line / Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|------------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| <i>Tower City – Public Square, E. 34th St. – Campus, and E.55th St. (all included as part of Red Line)</i> | <i>Cleveland</i> | <i>Metropolitan Core</i> | <i>Arrived</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| 1. E. 79 th St. | Cleveland | Neighborhood Center | Emerging | Medium | Medium | High | Medium |
| 2. Buckeye-Woodhill | Cleveland | Neighborhood Center | Emerging | Medium | Medium | Medium | Medium |
| 3. E. 116 th St. | Cleveland | Neighborhood Center | Emerging | Medium | High | Medium | Medium |
| 4. Shaker Square | Cleveland | Town Center | Arrived | Medium | Medium | Low | Medium |

6.1.2.2 Green Line LRT

Table 29: Summary, Green Line LRT

| Line / Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|----------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 5. Coventry Road, Southington Road | Shaker Heights | Neighborhood Residential | Arrived | Low | Medium | n/a | Low |
| 6. South Park Boulevard, Lee Road, Attleboro Road | Shaker Heights | Neighborhood Residential | Arrived | Medium | Low | n/a | Low |
| 7. Eaton Road, Courtland Boulevard, Warrensville Center Road | Shaker Heights | Neighborhood Residential | Arrived | Medium | Medium | n/a | Low |
| 8. Belvoir Boulevard, West Green Road, Green Road | Shaker Heights | Neighborhood Residential | Arrived | Medium | Medium | n/a | Low |

6.1.2.3 Blue Line LRT

Table 30: Summary, Blue Line LRT

| Line / Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|----------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 9. Drexmore Road (Cleveland), South Woodland Road (on City Line), Southington Road | Shaker Heights | Neighborhood Residential | Arrived | Low | Medium | n/a | Low |
| 10. Onaway Road, Ashby Road | Shaker Heights | Neighborhood Residential | Arrived | Medium | Medium | n/a | Low |
| 11. Lee Road, Avalon Road | Shaker Heights | Town Center | Arrived | Medium | Medium | n/a | High |
| 12. Kenmore Road, Parkland Road | Shaker Heights | Neighborhood Residential | Arrived | Medium | Medium | n/a | Low |
| 13. Farnsleigh Road, Warrensville Center Road (Van Aken District redevelopment) | Shaker Heights | Town Center | Ready | Medium | Medium | Low | Medium |

6.1.2.4 Waterfront Line LRT

Table 31: Summary, Waterfront Line LRT

| Line / Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|--------------|---------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 14. Settlers' Landing, Flats East Bank | Cleveland | Metropolitan Core | Ready | High | High | Low | Medium |
| 15. W. 3 rd St. | Cleveland | Special Destination | Ready | High | High | Medium | Medium |
| 16. Amtrak, North Coast | Cleveland | Metropolitan Core | Ready | High | High | Low | Medium |
| 17. South Harbor | Cleveland | Special Destination | Ready | High | High | Low | Medium |

6.1.3 HealthLine (Euclid Avenue)

Table 32: Summary, HealthLine BRT

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|-----------------------|----------------------------|-----------------|---------------|-----------------|-------------------|--------------------|
| <i>Tower City/Public Square Station (already included as part of Red Line)</i> | <i>Cleveland</i> | | | | | | |
| 1. E. 6th St., E. 9th St., E. 14th St. | Cleveland | Metropolitan Core | Ready | High | High | Low | Medium |
| 2. E. 19th St., E. 24th St. | Cleveland | Metropolitan Core | Ready | High | Medium | Low | Medium |
| 3. E. 30th St., E. 36th St., E. 40th St. | Cleveland | Metropolitan Core | Emerging | Medium | Medium | Low | Medium |
| 4. E. 51st St., E. 59th St., E. 66th St. | Cleveland | Metropolitan Core | Emerging | Medium | Low | Low | Medium |
| 5. E. 71st St., E. 79th St., E. 83rd St. | Cleveland | Metropolitan Core | Emerging | Medium | Low | Low | Medium |
| 6. E. 89th St., E. 93rd St., E. 100th St., E. 105th St., Stokes Boulevard | Cleveland | Metropolitan Core | Ready | Medium | Medium | Medium | Medium |
| 7. Adelbert Road, Cornell Road, E. 115th St., E. 118th St., E. 123rd St. | Cleveland | Metropolitan Core | Ready | Medium | Medium | Medium | Medium |
| 8. E. 6th St., E. 9th St., E. 14th St. (downtown) | East Cleveland | Main Street | Ready | Medium | High | Low | Low |
| <i>Garfield Road/Emily Road, Eddy Road/Wellesley Avenue: shared with Superior Station (already included as part of Red Line)</i> | <i>East Cleveland</i> | <i>Neighborhood Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| <i>Lakefront Avenue/Belmore Road, Debra Ann Lane shared with Stokes – Windermere Station (already included as part of Red Line)</i> | <i>East Cleveland</i> | <i>Town Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |

6.1.4 Priority Bus Corridors

6.1.4.1 Cleveland State Line

Table 33: Summary, Cleveland State Line Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|--------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| A. Superior Avenue, from E. 3rd St. to E. 13th St. | Cleveland | Metropolitan Core | Arrived | High | Medium | n/a | High |
| B. Chester Avenue, from E. 13th St. to E. 22nd St. (Cleveland State University) | Cleveland | Metropolitan Core | Arrived | High | Medium | n/a | High |
| 1. Baltic Road, West Blvd., W. 104th St., W. 110th St. | Cleveland | Neighborhood Residential | Emerging | Medium | Medium | n/a | Low |
| 2. W. 115th St., W. 117th St. (Cleveland-Lakewood City Line) | Cleveland | Neighborhood Center | Emerging | Medium | Medium | n/a | Medium |
| 3. Fry Avenue, Cove Avenue, Nicholson Avenue | Lakewood | Neighborhood Residential | Ready | High | High | n/a | Low |
| 4. Bunts Road, Belle Avenue (Lakewood Park), Cook Avenue/Warren Road | Lakewood | Neighborhood Residential | Emerging | Medium | High | n/a | Low |
| 5. Summit Avenue, Cranford Avenue/Westlake Avenue, Granger Avenue, Webb Road | Lakewood | Neighborhood Residential | Emerging | Medium | Low | n/a | Low |

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|--------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 6. West Clifton Boulevard and Sloane Avenue (regular bus stops) | Lakewood | Neighborhood Residential | Ready | Medium | High | n/a | Low |

6.1.4.2 Detroit Avenue / Detroit Road

Table 34: Summary, Detroit Avenue/Detroit Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|------------------|----------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. W. 25th St. to W. 38th St. | Cleveland | Main Street | Ready | Medium | High | n/a | Low |
| 2. W. 45th St. to W. 54th St. | Cleveland | Main Street | Ready | Medium | High | n/a | Low |
| 3. W. 58th St. to W. 70th St. (Gordon Square) | Cleveland | Neighborhood Center | Arrived | Medium | High | n/a | High |
| 4. W. 74th St. to W. 89th St. (West Eighties) | Cleveland | Neighborhood Residential | Ready | Medium | High | n/a | Medium |
| <i>W. 91st St. to W. 110th St., including West Blvd. – Cudell Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Ready</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| 5. Cove Avenue to Bunts Road (Lakewood municipal and civic) | Cleveland | Neighborhood Center | Ready | Medium | High | n/a | Medium |
| 6. Blossom Park/Manor Park Avenue to Elmwood Avenue (Lakewood business district) | Lakewood | Town Center | Emerging | Low | Medium | n/a | Medium |
| 7. Arthur Avenue to Cordova Avenue | Lakewood | Town Center | Arrived | Medium | High | n/a | Medium |
| 8. Webb Road to Matthews Avenue (last stop before Rocky River/City Line) | Lakewood | Main Street | Emerging | Low | High | n/a | Medium |
| 9. Cove Avenue to Bunts Road (Lakewood municipal and civic) | Lakewood | Main Street | Ready | Medium | High | n/a | Low |
| 10. Wooster Road to Linda St. (Rocky River CBD) | Rocky River | Town Center | Emerging | Low | Low | n/a | Medium |
| 11. Lakeview Avenue to Wagar Road (Rocky River High School) | Rocky River | Neighborhood Residential | Emerging | Low | High | n/a | Low |

6.1.4.3 Lorain Avenue / Lorain Road

Table 35: Summary, Lorain Avenue / Lorain Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|------------------|----------------------------|-----------------|---------------|-----------------|-------------------|--------------------|
| <i>W. 25th St. Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Ready</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>High</i> |
| <i>W. 25th St. to W. 32nd St. (NC to match station; not separately numbered)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Ready</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>High</i> |
| 1. Fulton St. to W. 50th St. (between Ohio City and W. 65th St. – Lorain Station) | Cleveland | Main Street | Ready | Medium | High | n/a | Low |
| <i>W. 65th St – Lorain (EcoVillage) Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Ready</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| 2. W. 73rd St. to W. 85th St. (segment on north side of I-90) | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 3. W. 90th St. to W. 105th St. | Cleveland | Main Street | Ready | Medium | High | n/a | Low |

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|------------------|----------------------------|-----------------|---------------|-----------------|-------------------|--------------------|
| 4. W. 110th St. to W. 120th St. | Cleveland | Neighborhood Center | Ready | Medium | High | n/a | High |
| 5. W. 122nd St. to W. 134th St. | Cleveland | Main Street | Ready | Medium | Medium | n/a | High |
| <i>W. 135th St. to West Park Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Low</i> | <i>Medium</i> |
| <i>West Park Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Low</i> | <i>Medium</i> |
| <i>West Park Red Line Station to W. 148th St.</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Low</i> | <i>Medium</i> |
| 6. W. 150th St./Warren Road to W. 165th St. (West Park neighborhood) | Cleveland | Main Street | Ready | Low | High | n/a | High |
| 7. W. 168th St. to 176th St. (intersection of Rocky River Drive) | Cleveland | Neighborhood Center | Emerging | Low | High | n/a | Low |
| 8. W. 178th St. to 18000 Lorain/Fairview Hospital (Rocky River crossing/City Line) | Cleveland | Special Destination | Long-Term | Low | Low | n/a | Low |
| 9. Story Road to Wooster Road | Fairview Park | Neighborhood Residential | Emerging | Low | Medium | n/a | Low |
| 10. W. 202nd St. to W. 210th St. | Fairview Park | Neighborhood Residential | Emerging | Low | High | n/a | Low |
| 11. Clifford Drive to W. 223rd St. (Fairview Park center) | Fairview Park | Town Center | Long-Term | Low | Low | n/a | Low |

6.1.4.4 W. 25th St. / Pearl Road / State Road

Table 36: Summary, W. 25th St. / Pearl Road / State Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|------------------|----------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| <i>W. 25th St. - Franklin Boulevard to Monroe Avenue, including W. 25th St. Red Line Station</i> | <i>Cleveland</i> | <i>Neighborhood Center</i> | <i>Ready</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>High</i> |
| 1. W. 25th St. - Potter Court to Vega Avenue to E. 22nd St. (Cleveland State University) | Cleveland | Industrial/Transitional | Emerging | Medium | Low | n/a | Medium |
| 2. W. 25th St. - Seymour Avenue to Holmden Avenue | Cleveland | Main Street | Ready | Medium | High | n/a | Medium |
| 3. W. 25th St. - Sackett Avenue to Daisy Avenue | Cleveland | Special Destination | Emerging | Medium | High | n/a | Medium |
| 4. Pearl Road - Mapledale Avenue to Denison Avenue | Cleveland | Main Street | Emerging | Low | Medium | n/a | Medium |
| 5. Pearl Road - Wildlife Way to Pearl & State | Cleveland | Special Destination | Long-Term | Low | Low | n/a | Medium |
| 6. State Road - Colburne Avenue to Hillcrest Avenue | Cleveland | Main Street | Emerging | Low | High | n/a | Medium |
| 7. State Road - Biddulph Avenue to Wetzel Avenue | Cleveland | Main Street | Emerging | Low | High | n/a | Low |

6.1.4.5 Broadway Avenue / Turney Road

Table 37: Summary, Broadway Avenue / Turney Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|------------------|--------------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. Broadway Avenue - Progressive Field to 2400 Broadway Avenue | Cleveland | Industrial/Transitional | Ready | Medium | High | n/a | Low |
| <i>Broadway Avenue - E. 30th St. to E. 37th St., including E. 34th St. Station (already included as part of Red, Blue, and Green Lines)</i> | <i>Cleveland</i> | <i>Industrial/Transitional</i> | <i>Emerging</i> | <i>High</i> | <i>Medium</i> | <i>Medium</i> | <i>Low</i> |
| 2. Broadway Avenue - Trumbull Avenue to Dille Avenue | Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |
| 3. Broadway Avenue - Gallup Avenue to McBride Avenue | Cleveland | Industrial/Transitional | Long-Term | Medium | Low | n/a | Low |
| 4. Broadway Avenue - Barkwill Avenue to E. 65th St. | Cleveland | Neighborhood Center | Emerging | Medium | Medium | n/a | Low |
| 5. Broadway Avenue - Aetna Road to Fleet Avenue/Osage Avenue (Slavic Village) | Cleveland | Neighborhood Center | Ready | Medium | High | n/a | Medium |
| 6. Broadway Avenue - Canton Avenue to Miles Avenue | Cleveland | Industrial/Transitional | Emerging | Low | Low | n/a | Medium |
| 7. Turney Road - Warner Road to Sladden Avenue/Grand Division Avenue | Cleveland | Neighborhood Residential | Emerging | Medium | Medium | n/a | Low |
| 8. Turney Road - Robinson Avenue to Dorothy Avenue | Garfield Heights | Main Street | Emerging | Low | Medium | n/a | Low |
| 9. Turney Road - Garfield Boulevard to McCracken Road | Garfield Heights | Town Center | Emerging | Low | Low | n/a | Low |
| 10. Turney Road - Plymouth Avenue to Granger Avenue | Garfield Heights | Neighborhood Residential | Emerging | Low | High | n/a | Low |

6.1.4.6 Kinsman Road

Table 38: Summary, Kinsman Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|--------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. Prospect Avenue & Ontario St. to E. 14th St. & Carnegie | Cleveland | Metropolitan Core | Emerging | Medium | Medium | n/a | Low |
| 2. Community College Avenue/ E. 22nd St. to E. 30th St./Woodland Avenue | Cleveland | Metropolitan Core | Ready | Medium | Medium | n/a | High |
| 3. Woodland Avenue - E. 34th St. to E. 51st St. | Cleveland | Industrial/Transitional | Emerging | Medium | Medium | n/a | Medium |
| 4. Kinsman Road - Woodland Road/ E. 55th St. to E. 62nd St. (short segment north of rail corridor) | Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Medium |
| 5. Kinsman Road - E. 68th St. to E. 81st St. (intersecting Opportunity Corridor and E. 79th) | Cleveland | Neighborhood Residential | Ready | Medium | Medium | n/a | High |
| 6. Kinsman Road - E. 90th St. to MLK Drive (intersecting E. 93rd St. TOD Plan) | Cleveland | Neighborhood Residential | Ready | Medium | Medium | n/a | High |
| 7. Kinsman Road - E. 112th St. to E. 126th St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 8. Kinsman Road - E. 130th St. to E. 143rd St. (Mt. Pleasant business district) | Cleveland | Neighborhood Center | Ready | Medium | Medium | n/a | High |
| 9. Kinsman Road - E. 144th St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|--------------|----------------|-----------------|--------------|-----------------|-------------------|--------------------|
| to E. 154th St. (Shaker Heights City Line) | | | | | | | |

6.1.4.7 Cedar Road

Table 39: Summary, Cedar Road Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|--------------------|--------------------------|-----------------|---------------|-----------------|-------------------|--------------------|
| <i>Cedar – University Red Line Station (already included as part of Red Line)</i> | <i>Cleveland</i> | <i>Metropolitan Core</i> | <i>Ready</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>High</i> |
| <i>Station to Euclid Heights Boulevard</i> | <i>Cleveland</i> | <i>Metropolitan Core</i> | <i>Ready</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>High</i> |
| 1. Euclid Heights Boulevard to Demington Drive | Cleveland Heights | Neighborhood Center | Ready | Low | High | n/a | Medium |
| 2. Middlefield Road to Cottage Grove Avenue | Cleveland Heights | Neighborhood Residential | Emerging | Low | Medium | n/a | Low |
| 3. Oakland Road to South Taylor Road (Cleveland Heights/University Heights City Line) | Cleveland Heights | Neighborhood Residential | Emerging | Medium | Medium | n/a | Low |
| 4. Thayne Road to 13809 Cedar | University Heights | Neighborhood Residential | Emerging | Low | Medium | n/a | Low |
| 5. Fenwick Road to 14055 Cedar (University Heights center) | University Heights | Town Center | Emerging | Medium | Low | n/a | Low |
| 6. Miramar Boulevard to Belvoir Road | University Heights | Neighborhood Residential | Emerging | Low | High | n/a | Low |

6.1.4.8 Euclid Avenue Extension

Table 40: Summary, Euclid Avenue Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|-----------------------|--------------------------|-----------------|---------------|-----------------|-------------------|--------------------|
| <i>Louis Stokes at Windermere Station (already included as part of Red Line)</i> | <i>East Cleveland</i> | <i>Town Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| <i>Louis Stokes at Windermere Station to Lee Road / Wymore Road</i> | <i>East Cleveland</i> | <i>Town Center</i> | <i>Emerging</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> | <i>Medium</i> |
| 1. Page Avenue to Collamer Road | East Cleveland | Neighborhood Center | Emerging | Medium | Medium | n/a | Low |
| 2. Noble Road to Ivanhoe | East Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |
| 3. Victoria Road to London Road | Cleveland | Main Street | Emerging | Low | Medium | n/a | Low |
| 4. Wayside Road/Torbenson Drive to E. 193rd St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 5. E. 196th St. to Highland/Dille | Euclid | Industrial/Transitional | Long-Term | Low | Low | n/a | Medium |
| 6. Chardon Avenue to E. 222nd St. | Euclid | Industrial/Transitional | Long-Term | Low | Low | n/a | Medium |
| 7. E. 222nd St. - Coulter Avenue to St. Clair Avenue | Euclid | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |
| 8. E. 222nd St. - Miller Avenue to Tracy Avenue | Euclid | Main Street | Emerging | Low | High | n/a | Low |
| 9. E. 222nd St. - Ball Avenue to Kennison Avenue | Euclid | Neighborhood Residential | Emerging | Low | Medium | n/a | Low |
| 10. E. 222nd St. - Seabrook Avenue to Babbitt/Lakeshore | Euclid | Town Center | Ready | Medium | Medium | n/a | High |

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|----------------------------|--------------|----------------|-----------------|--------------|-----------------|-------------------|--------------------|
|----------------------------|--------------|----------------|-----------------|--------------|-----------------|-------------------|--------------------|

6.1.4.9 Five Points to Downtown Euclid Bus Corridor

Table 41: Summary, Five Points to Euclid Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|--------------------|--------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. Ivanhoe Road, from Euclid Avenue to Five Points | Cleveland | Industrial/Transitional | Long-Term | Medium | Low | n/a | Medium |
| 2. 900 E. 152nd St. to Saranac Road | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Low |
| 3. E. 152nd Avenue from Darwin Avenue to Sylvia Avenue | Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |
| 4. Waterloo Road from E. 152nd St. to E. 156th St. | Cleveland | Neighborhood Center | Emerging | Low | Medium | n/a | Medium |
| 5. E. 156th St. from McCauley Avenue to Grovewood Avenue | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 6. Lakeshore Boulevard - E. 156th St. to E. 171st St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 7. Lakeshore Boulevard - 17570 Lakeshore to Maplecliff Road | Cleveland | Neighborhood Residential | Emerging | Low | Medium | n/a | Low |
| 6A. E. 185th St. - Underwood Avenue to Kildeer Avenue/Lasalle Road | Cleveland & Euclid | Main Street | Ready | Medium | Medium | n/a | High |
| 7A. E. 185th St. - Arrowhead Avenue to Rosecliff Road | Cleveland & Euclid | Neighborhood Center | Ready | Medium | Medium | n/a | High |
| 8. Lakeshore Boulevard - E. 185th St. to South Lakeshore Boulevard | Euclid | Special Destination | Emerging | Low | Low | n/a | Low |
| 9. Lakeshore Boulevard - E. 191st St. to E. 216th St. | Euclid | Neighborhood Residential | Ready | Low | High | n/a | Low |
| 10. Lakeshore Boulevard - E. 218th St. to E. 232nd St. | Euclid | Town Center | Emerging | Low | Medium | n/a | High |

6.1.4.10 St. Clair Avenue

Table 42: Summary, St. Clair Avenue Bus Corridor

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|--------------|-------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 1. Ontario St. to E. 13th St. | Cleveland | Metropolitan Core | Ready | Medium | Medium | n/a | Medium |
| 2. E. 17th St. to E. 26th St. | Cleveland | Industrial/Transitional | Emerging | Medium | High | n/a | Low |
| 3. E. 30th St. to E. 40th St. | Cleveland | Industrial/Transitional | Emerging | Medium | Medium | n/a | Medium |
| 4. E. 45th St. to E. 55th St. | Cleveland | Industrial/Transitional | Long-Term | Low | Medium | n/a | Low |
| 5. E. 60th St. to E. 71st St. | Cleveland | Main Street | Ready | Medium | High | n/a | Medium |
| 6. E. 72nd St. to E. 82nd St./Ansel Road | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 7. E. 88th St. to E. 100th St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 8. E. 102nd St. to E. 107th St. | Cleveland | Neighborhood Center | Emerging | Medium | Medium | n/a | Medium |
| 9. Lakeview Road to E. 123rd St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 10. Shaw Avenue split to E. 131st St. | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 11. E. 134th St. to E. 147th St. | Cleveland | Main Street | Emerging | Medium | Low | n/a | Medium |

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|--|--------------|-------------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| 12. E. 149th St. to E. 154th St. | Cleveland | Neighborhood Center | Ready | Medium | High | n/a | High |
| 13. Stevenson Road to London Road | Cleveland | Main Street | Emerging | Medium | Medium | n/a | Medium |
| 14. E. 165th St. to E. 175th St. | Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Medium |
| 15. E. 179th St. to 19115 St. Clair | Cleveland | Industrial/Transitional | Long-Term | Low | Low | n/a | Medium |
| 16. Chardon Road to E. 222nd St. | Euclid | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |
| 17. 23000 St. Clair (Lincoln Electric) to Euclid Park-and-Ride/ Babbitt Road | Euclid | Industrial/Transitional | Long-Term | Low | Low | n/a | Low |

6.1.5 Suburban City or Town Centers

6.1.5.1 In Cuyahoga County

Table 43: Summary, Suburban City Centers Included in Priority Bus Corridors

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|---|--------------------|----------------|-----------------|--------------|-----------------|-------------------|--------------------|
| A. Detroit Avenue / Detroit Road – segment 7 | Lakewood | Town Center | Arrived | Medium | High | n/a | Medium |
| B. Detroit Avenue / Detroit Road – segment 10 | Rocky River | Town Center | Emerging | Low | Low | n/a | Medium |
| C. Lorain Avenue / Lorain Road – segment 11 | Fairview Park | Town Center | Long-Term | Low | Low | n/a | Low |
| D. Broadway Avenue / Turney Road – segment 9 | Garfield Heights | Town Center | Emerging | Low | Low | n/a | Low |
| E. Louis Stokes at Windermere Station | East Cleveland | Town Center | Emerging | Medium | Medium | Medium | Medium |
| F. Cedar Road – segment 5 | University Heights | Town Center | Emerging | Medium | Low | n/a | Low |
| G. Euclid Avenue / Lakeshore – segment 10 | Euclid | Town Center | Ready | Medium | Medium | n/a | High |

6.1.5.2 Outside of Cuyahoga County

Table 44: Summary, Suburban Centers Outside Cuyahoga County

| Station or Station Cluster | Municipality | Place Typology | Readiness Score | Connectivity | Market Strength | Land Availability | Government Support |
|-------------------------------|--------------------------|---------------------|-----------------|--------------|-----------------|-------------------|--------------------|
| A. Lakeland Community College | Kirtland, Lake County | Special Destination | Emerging | Medium | Low | Low | Low |
| B. Downtown Painesville | Painesville, Lake County | Town Center | Ready | Medium | Medium | Low | Medium |
| C. Downtown Elyria | Elyria, Lorain County | Town Center | Ready | Medium | Medium | Low | Medium |

7 Implementation

There are many locations across Northeast Ohio that can host vibrant transit-oriented development. The TOD Place Typology establishes the long-term vision for each station area. The TOD Readiness Score, along with its underlying Subscores and metrics, provides a marker of how closely a station area currently resembles its aspirational TOD potential, while highlighting those aspects of TOD Readiness that are lagging. By examining the Readiness Scores, stakeholders can identify and prioritize the unique combinations of capital and infrastructure investments, policy and regulatory changes, and development initiatives that can move the station area up the readiness scale. The end goal is not to increase the Readiness Score for its own sake, but to change the on-the-ground conditions underlying the score.

7.1 General Recommendations Related to TOD Readiness

7.1.1 Connectivity

Improvements to station area Connectivity will improve physical access to and through a station area by all transportation modes, as well as increasing access to the potential pool of riders who might visit or use the station area.

Table 45: Connectivity Improvement Strategies

| Metric | Strategies to Increase Readiness |
|----------------------------------|---|
| Daily Ridership | Increase local activity in the station area: increase residential density; add and retain business establishments with high employment-per-space patterns; and introduce visitor destinations with consistent drawing power. Attract and retain ridership by maintaining reliable, frequent, and efficient service and pleasant station area amenities. |
| Labor Market Connectivity | Focus business retention and job growth in station areas, and encourage multi-family residential and employment center development in those station areas served by more than one premium transit line. |
| Mode Efficiency | External economic factors limit control over mode efficiency; encourage all typologies of TOD, but where needed, educate stakeholders on the TOD potential along modal networks perceived as having weaker opportunity (i.e., traditional bus). |
| Ped/Bike Connectivity | Maintain and improve pedestrian access to the station and within the station area: fill sidewalk gaps, address ADA compliance, and add streetscape amenities contributing to safety and ease of movement. Maintain and improve bicycle access to the station and within the station area: provide bicycle parking and loading at stations; last-mile connectivity through bicycle share services; and fill route gaps with bicycle lanes or paths as appropriate to the roadway network for safety and ease of movement. |
| Highway Connectivity | Implement congestion mitigation strategies to manage traffic volumes and highway access. |

7.1.2 Market Strength

Improvements to station area Market Strength will improve the fundamental conditions necessary for successful real estate development and competitive position relative to other areas within Northeast Ohio.

Table 46: Market Strength Improvement Strategies

| Metric | Strategies to Increase Readiness |
|--|--|
| Station Area Population Density | Focus medium to high density residential development projects in transit station areas, including affordable housing, workforce housing, and choices for seniors and multi-generational communities. |
| Station Area Employment Density | Focus medium to high employment economic development projects in transit station areas. |
| Development Activity | Ensure that by-right land entitlement ordinances and regulations permit TOD in the station area. Consider public incentives to defray infrastructure and site readiness costs. |

| Metric | Strategies to Increase Readiness |
|--|--|
| Residential Submarket Performance | External economic factors limit control over market strength. Public officials can work toward implementation of municipal and metropolitan policy goals in comprehensive, general, and regional plans, including public health, education, economic vitality, fiscal conditions, etc. |
| Office Submarket Performance | |
| Retail Submarket Performance | |
| Industrial Submarket Performance | |

7.1.3 Land Availability

Land is a finite resource, and the ability to increase the supply is limited, especially in mature developed areas. Opportunities lie in creative possibilities to “find” sites in mature areas by spinning off underutilized portions of developed properties and by setting the stage for transit-oriented reuse as properties turn over or station-area land values increase.

Table 47: Land Availability Improvement Strategies

| Metric | Strategies to Increase Readiness |
|---|---|
| Developable Sites | Implement neighborhood or small area concept or master plans to document the vision for the station area in the event that currently built-out parcels or buildings turn over for redevelopment. Ensure by-right land entitlement ordinances and regulations permit development consistent with the Place Typology. |
| Transit Property / Surface Parking | Implement neighborhood or small area concept or master plans to document the vision for the station area, anticipating that parking needs will change due to transit usage and that rising land values may justify structured parking to free up developable land. Ensure by-right land entitlement ordinances and regulations permit development consistent with the Place Typology. |
| Publicly Owned Property | Implement neighborhood or small area concept or master plans to document the vision for the station area, in the event that current owners decide to lease or sell part or all of their properties. Ensure by-right land entitlement ordinances and regulations permit development consistent with the Place Typology. Public jurisdictions should adopt a policy of evaluating whether a given parcel should be made available for private or joint development or retained for public or institutional use through a highest and best use analysis. |

7.1.4 Government Support

Low and Medium Government Support metrics can be improved by changes to public policy, investment strategies, and administrative controls and processes, consistent with the aspirational vision of the TOD Place Typology, will improve.

Table 48: Government Support Improvement Strategies

| Metric | Strategies to Increase Readiness |
|--|--|
| Zoning | Ensure by-right land entitlement ordinances and regulations permit development consistent with the Place Typology. Provide technical assistance and incentives to defray or mitigate costs related to site complexities or expensive permitting requirements. |
| District or Other Special Plans | Implement station area plans consistent with the assigned Place Typology category, including land use, site concepts, scale and intensity of uses, civil and transportation infrastructure improvements, parking standards, and urban design and streetscape guidelines. |
| Infrastructure | Prioritize infrastructure projects closest to transit stations in capital improvement plans and construction schedules to encourage redevelopment closest to the station, particularly those that improve connectivity and contribute to site redevelopment readiness. |

7.2 Additional Implementation Guidance

There are at least three reasons to pursue TOD as a regional strategy. The first is to enhance Greater Cleveland’s future competitiveness. The role of the millennial cohort in reanimating American cities has been extensively documented, including their relative preferences for alternative transportation, multifamily rental housing, and mixed-use neighborhoods. While it is important not to exaggerate this profile, its underlying elements are very supportive of TOD. A complementary profile is beginning to emerge of the Baby Boomer generation, as its members reach retirement age and display more of an interest in “aging in place”—across a variety of metropolitan settings—than the preceding generation.

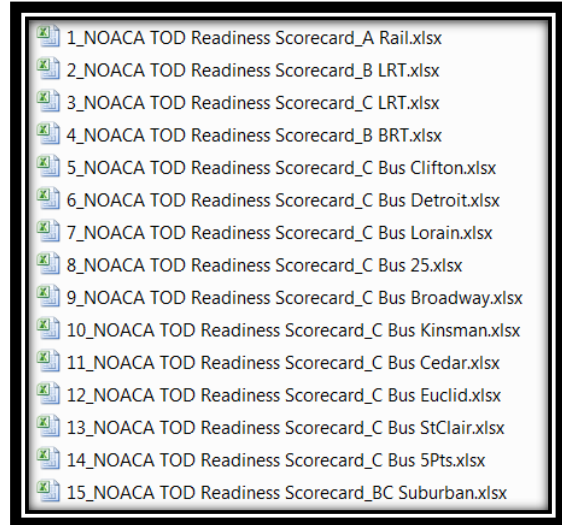
Best practices in policy for supporting TOD are defined as part of Task 2 of this project in “The TOD Program.”

Best practices to support TOD for all generations and specifically to enable aging in place are defined as part of Task 3 in “The Aging-in-Place Strategy.”

8 Appendix 1: Dynamic Scorecard Tool

In addition to the analysis prepared during Task 1: TOD Typology, Metrics, and Scorecard of the *Regional TOD Scorecard and Implementation Plan* project to assign TOD Place Typologies to each station in scope and then to assess TOD Readiness, Task 1 also includes delivery of the interactive Microsoft Excel-based scorecard tools that NOACA can use to monitor TOD implementation progress over time by refreshing the data metrics and revisiting the scoring to test progression along the Readiness continuum. To avoid an unwieldy tool, there are individual workbooks for each Category and Line, for a total of fifteen workbooks:

- Category A – Red Line Heavy Rail Stations
- Category B – Light Rail Stations
- Category B – Health Line BRT Stations
- Category C – Light Rail Station Clusters
- Category C – Cleveland State Line Bus Corridor
- Category C – Detroit Avenue/Road Bus Corridor
- Category C – Lorain Avenue/Road Bus Corridor
- Category C – W. 25th St. / Pearl Road / State Road Bus Corridor
- Category C – Broadway Avenue/Turney Road Bus Corridor
- Category C – Kinsman Road Bus Corridor
- Category C – Cedar Road Bus Corridor
- Category C – Euclid Avenue Extension Bus Corridor
- Category C – St. Clair Avenue Bus Corridor
- Category C – Five Points to Downtown Euclid Bus Corridor
- Category B/C – Suburban Centers



Each workbook is structured in exactly the same way (same formulas and linkages between worksheets), with there are seven worksheets in each workbook.



The worksheets contain detailed data, analysis of data, scoring and totaling:

- *Scorecard* – calculation of scores for all stations or station clusters in a line, including Low/Medium/High scores for individual metrics, Low/Medium/High scores for the four SubScores, and Long-Term/Emerging/ Ready/Arrived overall Readiness Scores. Includes key input data for individual metrics and assigned raw point values for each. The scoring formulas

embedded in this worksheet follow the methodology defined in Section 5 of this report. This worksheet contains data in four sections:

- The *Summary Scorecard* section at the top of the worksheet presents the Place Typology assignment for each station or station cluster in the corridor or line, the overall Readiness Score, and the four SubScores' Low / Medium / High ratings. The three-point-scale SubScores and the four-point-scale overall Readiness Scores are calculated based on scoring ranges defined on the ** name of line ** worksheet. This section is formula-based, and no manual data entry is required for this section.
 - The *Detailed Scorecard* section presents the Low / Medium / High ratings for each of the metrics assessed for the station or station cluster. This section includes formulas applying the scoring criteria and thresholds documented in Section 4 to the data shown in the section immediately below, *Scoring Data*. This section is formula-based, and no manual data entry is required for this section.
 - The *Scoring Data* section pulls the data used to calculate the individual readiness metric ratings from the last three worksheets in the workbook, as well as various calculations manipulating this data. The data in this section feeds the *Detailed Scorecard* section above it. Periodic updates to underlying data are updated on the feeder worksheets and filtered into this section; some manipulations may require manual updates in this section.
 - The *Scoring Calculator* section assigns point values to the Low / Medium / High ratings for each metric as derived in the *Detailed Scorecard* section. Points are totaled for each SubScore and for the overall score. Aside from the Adjustment Factor input field in column Z, this section is formula-based, and no manual data entry is required for this section.
- *Charts* – bar chart presentation of distribution of stations or station clusters across the set of Place Typology categories and Readiness Score stages. Data tables on this worksheet are formula-based, and no manual data entry should be required.
 - **name of line** - designation of which metrics are applicable to the line and to each station or station cluster in that line, based on station Category (A/B/C) and Place Typology; calculation of minimum and maximum possible points, and definition of Readiness Score ranges for Long-Term/Emerging/ Ready/Arrived scores, and overall Low/Medium/High ranges for the four SubScores.
 - *TypologyB* – includes Typology-specific benchmarks for population density, employment density, and ridership, against which station data is measured in the Scorecard.
 - **name of line*_SE* – socio-economic, ridership, station and property metrics for all stations or station clusters in a line. Periodic updates to Readiness Score require manual updates to this worksheet from the project GIS.
 - **name of line*_LU* – NEOSCC land use data for all stations or station clusters in a line, including acreage classification and percent of station area distribution. Periodic updates to Readiness Score require manual updates to this worksheet from the project GIS.
 - **name of line*_Zoning* – NEOSCC regional zoning data for all stations or station clusters in a line, including acreage by zoning category and percent of station area distribution. Periodic updates to Readiness Score require manual updates to this worksheet from the project GIS.

Please refer to separate file NOACA TOD Task 1 Appendix1 20161103.pdf for the entire scorecard package.

9 Appendix 2: Station Area Metrics and Data

The specific metrics and their associated data needs were proposed in the February 3, 2016 Data Request Memorandum. The level of data collection conducted for Task 1 varies according to: (a) the appropriate TOD catchment buffer (¼ mile or ½ mile); and (b) the appropriate depth of analysis (high, medium, or low); each reflecting the typical impacts of the transit mode in question. These data elements were described in Section 3 in the main body of this report.

This Appendix describes the data elements, sources, analysis, and handling of the data collected for the Readiness Metrics. The data are provided in the set of spreadsheets at the end of Appendix 1.

9.1 Geographic Information System Tools

Data to enable the Place Typology assignments and Readiness Scoring were assembled using ArcView Geographic Information System (GIS) software with data provided by NOACA from its own databases or procured for this project from other agencies by NOACA project management. Data was supplied by NOACA as ArcView shapefiles and uploaded into the consultant GIS. Buffers around the station areas or station clusters were custom-drawn in GIS to reflect the catchment areas and station or station cluster identified for the project and defined in Section 2. Queries to extract desired data were defined and output to Microsoft Excel for interpretation, and in some cases (as defined in the next section) manipulation such as summing or derivation of weighted averages. The buffers and queries were submitted at the end of Task 1 to NOACA project management and NOACA GIS staff with separate technical user notes, to allow NOACA to update the Readiness Scorecards in the future by reprocessing queries of data.

9.2 Data Sources and Manipulation Notes

9.2.1 Aligning TOD Station Areas / Bus Cluster Segments to Data Geographies

As the station areas and bus stop cluster segments are custom-designed for this project, they do not align to any standard geographies by which data is reported, from any number of sources or categories. For example, socio-economic data is reported using traffic analysis zones (TAZ) or various Census units (block, block group, tract). Land use, zoning and property information is based on parcel demarcations, so GIS is used to calculate the data within our project's study areas. In addition to not lining up one-for-one, a station area may contain part or all of the source data's units – in the case of partial overlap, GIS is used to calculate the pro-rata share of the data for that unit to be assigned to our station area based on the percentage of area falling into the station area, assuming even distribution of the source data across that geography (in GIS parlance, “clipping the data to the buffer”). To arrive at the total figure for a station area, the pro-rata fractions from each source geographic unit are added. It should be noted that these are close approximations rather than absolute or survey-verified counts. This approach is consistent with FTA calculation guidance for project development studies and other related analyses.

Further manipulation of source data is required for calculation of “median” or “average” figures, such as median household income, in each station area. A weighted average method is used to determine the median or average figure attributable to each pro-rata fraction of the related source geographic unit, which are then summed to arrive at the median or average figure for the total station area. As noted above, this should be treated as a close approximation rather than an absolute or survey-verified measurement.

9.2.2 Character Typology Data

9.2.2.1 Land Use Classification (Station Categories A, B and C)

Land use data for study areas as of 2012 were provided by NOACA from NEOSCC. These are organized by seven standard land use categories and assigned at the parcel level. Subtotals for each station area were provided by land use categories in acres and percent of each station area.

9.2.3 Readiness Scoring Data

9.2.3.1 Demographic Indicators (Station Categories A, B and C)

Population, employment, households, and median household income for 2010 and 2035 were provided by NOACA and recorded at the TAZ level. 2010 was used for “current” year data, and 2035 was used for “forecast” projections, as the most long-term dataset approved for external use by NOACA. 2010 TAZ boundaries were used to process the 2010 data; as interim forecasts, the 2000 TAZ boundaries were used to process the 2035 data per NOACA’s instructions. 2040 forecasts were under review as of the time of this task and unavailable for use on this project.

Density figures provide a consistent base of comparison among station areas of different dimensions and across time. Figures were calculated per acre, as a unit familiar to local government planners, and per square mile, as a unit familiar to transit planners who work with FTA evaluation criteria.

9.2.3.2 Zoning Analysis (Station Categories A and B)

NOACA provided NEOSCC zoning data as of 2012 at the parcel level for Cuyahoga, Lake and Lorain Counties. Subtotals for each station area were provided by zoning classification in acres and percent of each station area.

9.2.3.3 Transit Ridership and Infrastructure (Station Categories A and B)

NOACA provided ridership for GCRTA for rail and bus service by stop or station. Ridership figures for the Rail and LRT stations include BRT boardings in addition to rail boardings, if there are BRT stations in the service area, but not regular bus. For bus cluster segments, only average daily boardings for the regular bus routes in the priority bus corridors are included. NOACA also made available a GCRTA survey of rail station characteristics and amenities, including the number of spaces at stations with park-and-ride facilities.

NOACA provided 2015 average daily boardings for LakeTran and Lorain County Transit lines serving the selected suburban community centers, but data were available only at the line level, not at stop level.

9.2.3.4 Land Availability Indicators (Station Categories A and B)

Potential for redevelopment was quantified by looking at the scale of vacant land in each study area in acres and in the number of parcels over 5 acres in size. NOACA provided this data from 2011.

The availability of publicly owned land in each study area was also quantified in acres, subtotaled by properties owned by tax-exempt entities and properties in a land bank program. This data was provided by NOACA from Cuyahoga County.

9.2.3.5 Real Estate Indicators (Station Category A)

A selection of real estate indicators was downloaded in April 2016 from CoStar, a third-party real estate data provider, to gauge market activity in the station areas. Depending on the character typology assigned to each station, metrics were collected for a composite of industrial/flex space (I/T stations only) and for retail, office, and multi-family residential sectors (all other station typologies). Metrics included base

built square feet, annual net absorption (or supply added), vacancy rates, and rents, on rolling 5 year averages to smooth for business cycles.

Affordable housing figures for 2013 from the Ohio Housing Finance Agency were geocoded in the project GIS to quantify the number of buildings and dwelling units of legally-binding affordable housing in each station area.