MADISON EAST-WEST BRT PLANNING STUDY

Detailed Evaluation of Alternatives

Technical Memo 1: Station Area Analysis

FINAL

July 2019

Prepared for:

City of Madison

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REVISIONS

Revision No.	Date	Prepared By

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Overview

The Madison East-West Bus Rapid Transit (BRT) Planning Study is a 12-month study led by the City of Madison in coordination with Metro Transit and the Madison Area Transportation Planning Board (MATPB).

The project will identify and evaluate a transit investment alternative for implementation within the study corridor (Figure 1), which runs from East Towne Mall to West Towne Mall, through the Isthmus. The corridor is approximately 15 miles long.

This study expands on previous planning work to identify a locally-preferred transit investment alternative that meets the needs set forth in the Purpose and Need Report. At a high level, these needs include providing safe, efficient, and expanded levels of mobility within the increasingly busy study corridor and to improve connectivity between the corridor and employment centers.

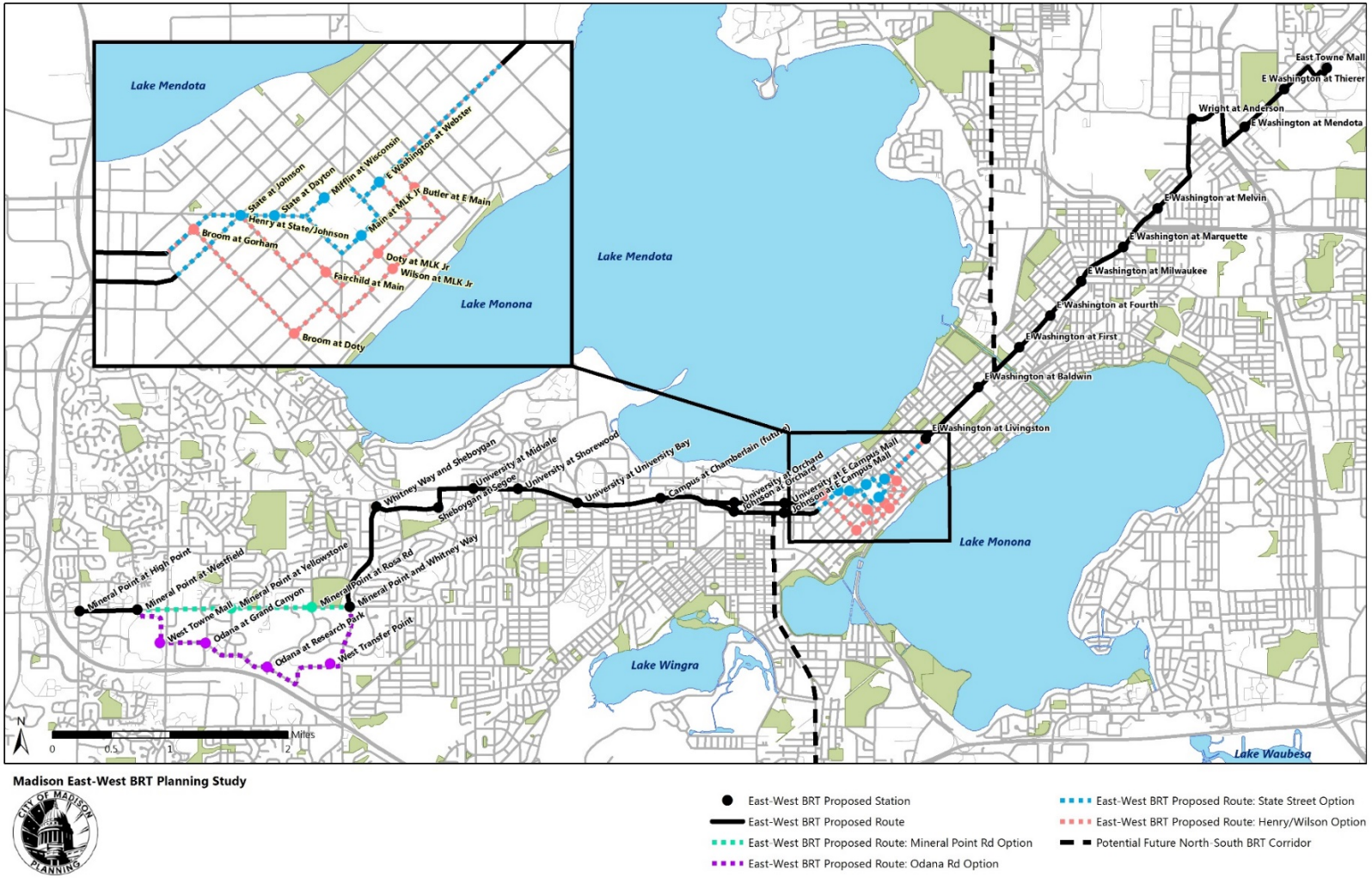
Following a multi-phase, iterative alternatives development and evaluation process that is supported by extensive public engagement activities, the City of Madison will recommend the locally preferred alternative (LPA) to the Common Council for adoption. The LPA will be the transit investment alternative that best meets the purpose of and need for the project (as defined in the Purpose and Need report) and is competitive for funding through the Federal Transit Administration (FTA) Small Starts capital funding program.

The study is scheduled for completion in fall 2019.

Corridor Context and Description

The proposed BRT corridor runs from approximately East Towne Mall on the east side of Madison, to West Towne Mall on the west side of Madison, running through the Isthmus and the University of Wisconsin (UW) campus (Figure 1). Two options on the west side will be analyzed as part of this study, as well as two options in downtown. One of each of these will be selected as part of the LPA.

Figure 1. Madison East-West BRT Corridor



Source: City of Madison

Overview of Project Evaluation Process

The East-West BRT Planning Study is following a two-phase method to identify and develop the LPA.

- Phase 1 includes the detailed evaluation of the potential alignment alternative(s). The detailed evaluation will result in the identification of the preferred alternative, including the best-performing minimal operable segment[1] (MOS), which will include a preferred alignment on the west side and around the Capitol in downtown. The alternative resulting from this evaluation will become the preferred alternative, which will advance for further refinement in Phase 2.
- Phase 2 will refine the preferred alternative selected at the end of Phase 1 to become the LPA. The LPA will include an MOS, which will be the first investment in construction of the full 15-mile corridor.

The evaluation criteria associated with each phase are a combination of quantitative and qualitative performance measures. Phase 1 will apply metrics that are linked to the project goals and objectives (as defined in the study Purpose and Need Report, available under separate cover) and will identify the preferred alternative. Phase 2 will evaluate the preferred alternative against federal criteria to determine the LPA. This two-phase process will result in the identification of an LPA that not only meets locally-identified project purpose and needs, but is also competitive for federal funding.

Table 1 presents the evaluation criteria that are likely to be used during the two phases of alternative evaluation. Phase 2 will build upon the criteria from Phase 1, ensuring a consistent rating throughout. Details of these criteria, including the methodology and screening thresholds, will be defined as the study progresses.

Table 1. Evaluation Criteria

Project Goals	**Evaluation Phases**	
	Phase 1: Detailed Evaluation	**Phase 2: Refinement of the LPA**
Increase the efficiency, attractiveness, and utilization of transit for all users	• Ridership • Transit travel times	• Mobility improvements[a]
Efficiently manage the forecasted increase in corridor travel demand	• Traffic impacts • Parking impacts • Potential right-of-way impacts • Bicycle and pedestrian impacts	• Mobility improvements[a] • Congestion relief[a]

[1] An MOS is a segment of the LPA that provides the most cost-effective solution with the greatest benefits for the project. According to the FTA, the MOS must be able to function as a stand-alone project and not be dependent on any future segments being constructed.

Project Goals	Evaluation Phases	
	Phase 1: Detailed Evaluation	**Phase 2: Refinement of the LPA**
Contribute to a socially-, economically-, and environmentally-sustainable transportation network	• Station area population and employment densities • Station area equity characteristics • Station area land use and economic development opportunities • Environmental impacts/benefits	• Economic development[a] • Land use [a] • Environmental benefits[a]
Develop and select an implementable and community-supported project	• Capital and operating and maintenance costs • Cost effectiveness • Community support	• Financial capacity analysis[a] • Cost effectiveness[a]

[a] *Consistent with FTA New Starts criteria.*

Technical Memo #1 Overview

Six technical memoranda (tech memos) are being prepared to describe the results of the evaluation. The six tech memos include the following:

- Tech Memo 1: Station Areas
- Tech Memo 2: Transportation
- Tech Memo 3: Potential Environmental Impacts
- Tech Memo 4: Capital Costs
- Tech Memo 5: Operating and Maintenance Costs
- Tech Memo 6: Ridership

Results contained in the six tech memos are summarized in the *Detailed Evaluation of Alternatives Report* (available under separate cover).

This report (Tech Memo 1: Station Area Analysis) presents the results of the evaluation of the alternatives with respect to three station area sub-criteria:

- Station Area Population and Employment
- Equitable Access to the Transit Investment
- Development Potential

A summary of the station area analysis can be found in the following section; the methodology, data sources, and results of the evaluation are presented after the summary.

Detailed Alternatives

As discussed in the *Detailed Definition and Downtown Routing Memo*, the corridor has been divided into segments to simplify the alternative definition and evaluation process, see Figure 2. This segmentation will facilitate the identification of the MOS through the modular organization of data. Consistent data collection and analyses will be applied along the full length of the corridor, but the results are reported in segments defined in the following subsections. This will enable a quick comparison of different combinations of segments as MOSs are developed and considered, and will facilitate internal and external decision making. These segments represent natural breakpoints in either corridor development character or right-of-way geometry.

Figure 2. Segments for the East-West BRT Corridor

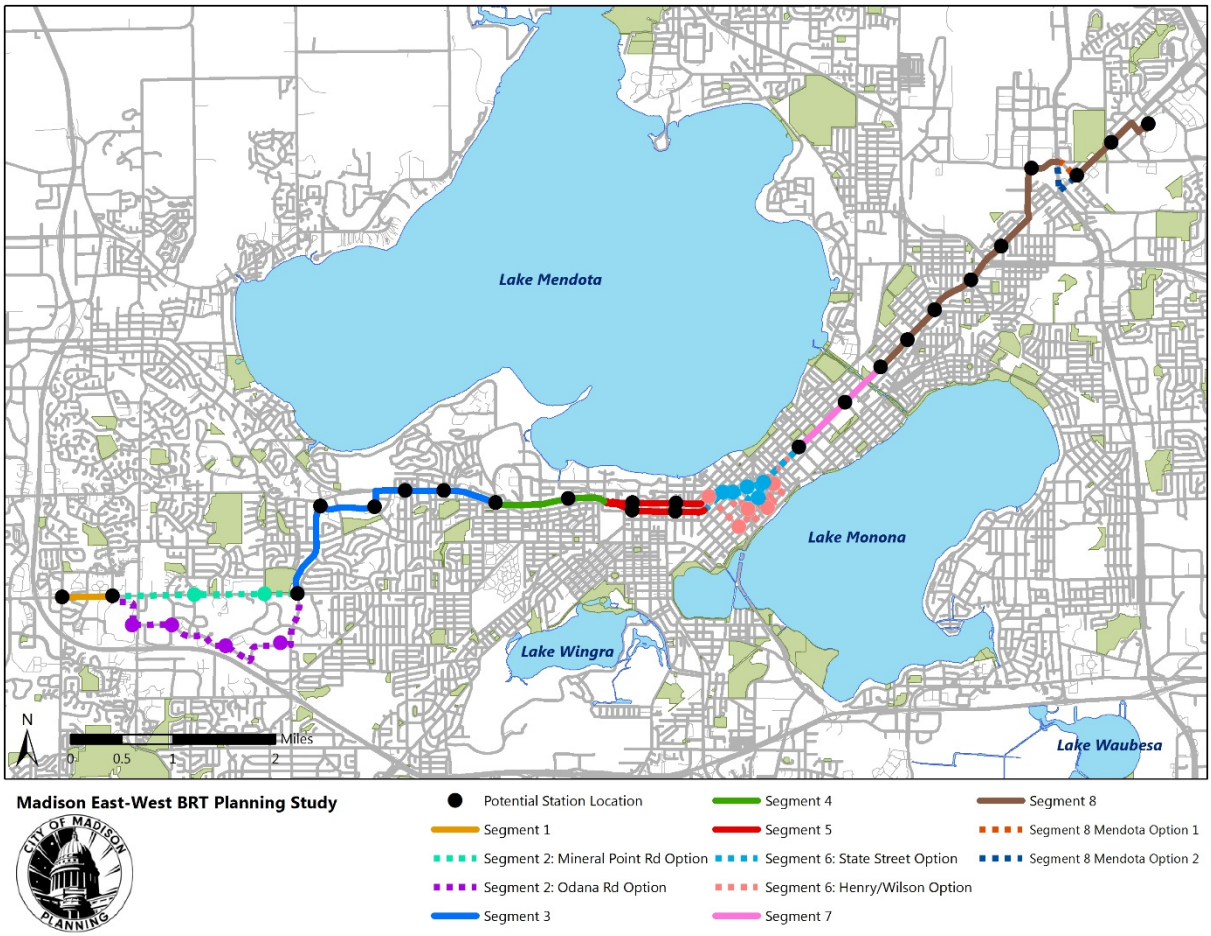


Figure 3 shows the two downtown options in greater detail. The first option runs on State Street and around the Capitol Square, then traveling east on East Washington Avenue. The second option uses paired one-way streets, Henry/Broom and Doty/Wilson to travel near the Capitol Square and is not affected by most detour events. One option will be chosen based on the results of the analysis in the next phase of this study.

Figure 3. Segment 6

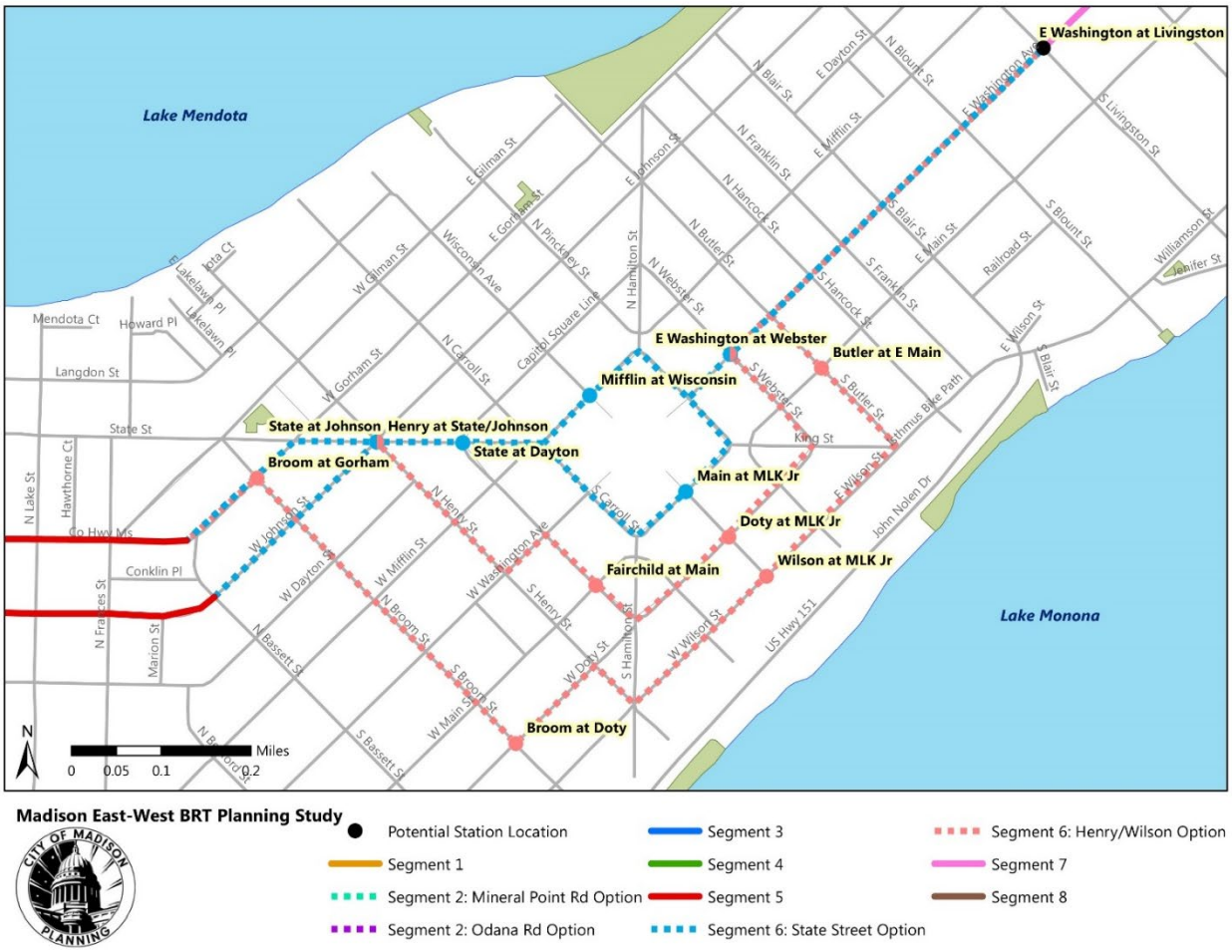


Table 2 lists the stations by segment. These are the stations included for the segment area analysis.

Table 2. Stations by Segment

Segment	Station Name
Segment 1	Mineral Point High Point
	Mineral Point at West Field
Segment 2: Odana	West Towne Mall
	Odana at Grand Canyon
	Odana at Research Park
	West Transfer Point

Segment	Station Name
Segment 2: MP	West Towne Mall
	Mineral Point at Yellowstone
	Mineral Point at Rosa
Segment 3	Mineral Point and Whitney Way
	Whitney Way and Sheboygan
	Sheboygan at Segoe
	University at Midvale
	University at Shorewood
Segment 4	University at University Bay / Farley
	Campus at Chamberlain (future)
Segment 5	University at Orchard
	Johnson at Orchard
	University at E Campus Mall
	Johnson at E Campus Mall
Segment 6: State St	State at Dayton
	Main at MLK Jr
	E Washington at Webster
	State at Johnson/Henry
	Mifflin at Wisconsin
Segment 6: Henry/Wilson	State at Johnson/Henry
	Fairchild at Main
	Doty at MLK Jr
	E Washington at Webster
	Butler at Main
	Wilson at MLK Jr
	Broom at Doty
	Broom at Gorham
Segment 7	E Washington at Livingston
	E Washington at Baldwin
	E Washington at S First
Segment 8	E Washington at 4th
	E Washington at Milwaukee
	E Washington at Marquette
	E Washington at Melvin
	Anderson at Madison College
	E Washington at Mendota
	E Washington at Thierer
	East Towne Mall

Station Siting

The BRT stations were initially laid out by MATPB staff in 2012 and have been adjusted and modified since. The goal was to space them out so that they are about a half mile apart. Several factors were considered:

1. **Physical site**
   There needs to be space for the BRT station; most of the time, BRT stations will end up where existing bus stops are.
2. **Ridership**
   BRT stations should minimize walk times and be close to ridership generators to the extent possible.
3. **Pedestrian infrastructure and crossings**
   Since BRT is mostly along arterial streets with higher traffic volumes and speeds, stations should be in places where people can cross, usually at traffic signals.
4. **Modal integration**
   Stations are placed where other bus routes intersect as well as where the street grid provides access to neighborhoods. Stations near the end of the line are in areas that could be served by park-and-ride lots.

The station locations identified resulted in about 50 station pairs for the full east-west, north-south system. In some locations, stations were closer together than ideal, but were placed to meet the criteria above. The current BRT study is looking closely at the station locations along the east-west corridor to continue to refine them.

Summary of Results

This section provides a brief summary of the station area analysis. The following sections provide a detailed analysis of each of the sub-criteria.

Station Area Population and Employment

Throughout the corridor population densities are forecasted to increase, generally by more than 10 percent, often more than 50 percent. The largest population increases are anticipated in Segments 2 and 6. Likewise, at most station areas throughout the corridor, the employment densities are forecasted to increase, generally between 5 to 20 percent. The largest employment growth is anticipated in Segments 3 and 7.

Station Area Equity Analysis

The three main components of the equity analysis include households that do not have access to a car (zero-car households), households that are below poverty, and people of color. The range of households that do not have a car fluctuates throughout the corridor, the highest percentage of households without a car are in Segments 5 and 6 (25 to 59 percent). This contrasts to the east and west ends of the corridor where the percent of zero-car households is 8 to 13 percent.

The range of households that are below poverty also fluctuates throughout the corridor, the highest percentage of households below poverty are in Segments 5 and 6 (20 to 87 percent). This contrasts to the east and west ends of the corridor where the percent of households below poverty is 7 to 21 percent.

For both households without a vehicle and households that are below poverty, the concentration in Segments 5 and 6 is in part due to the large student population that lives here that do not have a car and do not have full-time jobs.

The percent of the population who are minorities is relatively consistent throughout the corridor, ranging from 13 to 46 percent, but generally about one-third of the population.

Development Potential

Development potential was measured by evaluating the number of unconstrained acres and what percentage of those acres that have a zoning designation that could be supportive of transit-oriented development (TOD). The percentage of acres that are unconstrained in the station areas is relatively consistent throughout the corridor, the average is 37 percent. The percentage of those acres that could be supportive of TOD varies throughout the corridor; Segments 1, 2 and 6 have the highest percentage of unconstrained acres that are potentially supportive of TOD (72 to 91 percent).

Station Area Population and Employment

Population and employment densities were calculated for each station area to gain a better understanding of how many people and employees live and work near each proposed station. The following sections detail how these numbers were calculated, where the data came from, and the results of the analysis.

Methodology

Employment and population density were measured within a half-mile radius of each station location.

- The MATPB uses a Travel Demand Model (TDM) as part of their transportation planning activities in the Madison area. The TDM forecasts traffic volumes based on population and employment data. The household and employment data for the TDM's traffic analysis zone (TAZ) geography is in a Geographic Information System (GIS) shapefile. This shapefile was clipped to a half-mile radius around each station.
    - Households were converted to population by using a multiplier supplied by the MATPB. The household to population multiplier for 2010 is 2.33 and the household to population multiplier for 2050 is 2.235.
- To analyze station area population and employment, the project team developed estimates of the total population and employment within a half-mile of each station location, consistent with FTA guidance.
    - Per FTA guidance, estimates were created by assigning population and employment totals to each station area based on the prorated amount of area that falls within the half-mile circle around the station. For example, if 60 percent of the area of a TAZ falls within the half-mile

radius of a station, it is assumed that 60 percent of the population and employment of that TAZ are also within the half-mile radius.
- Densities were calculated by dividing the prorated population or employment total by the area using square miles as the unit of measurement.

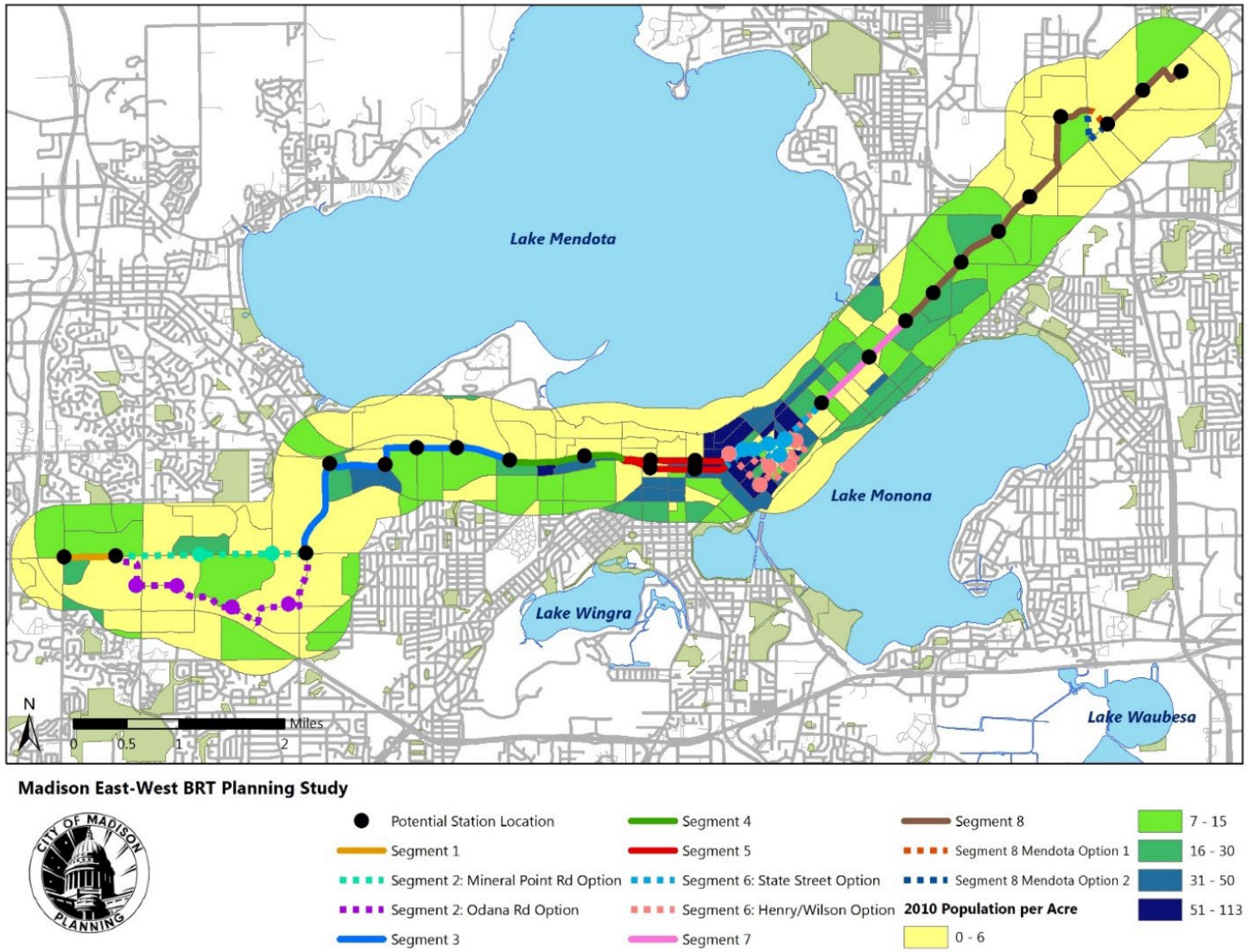
Data Sources

Existing (2010) and forecasted (2050) households/population and employment data provided by the MATPB were used to determine the employment and population densities around the stations.

Summary of Results

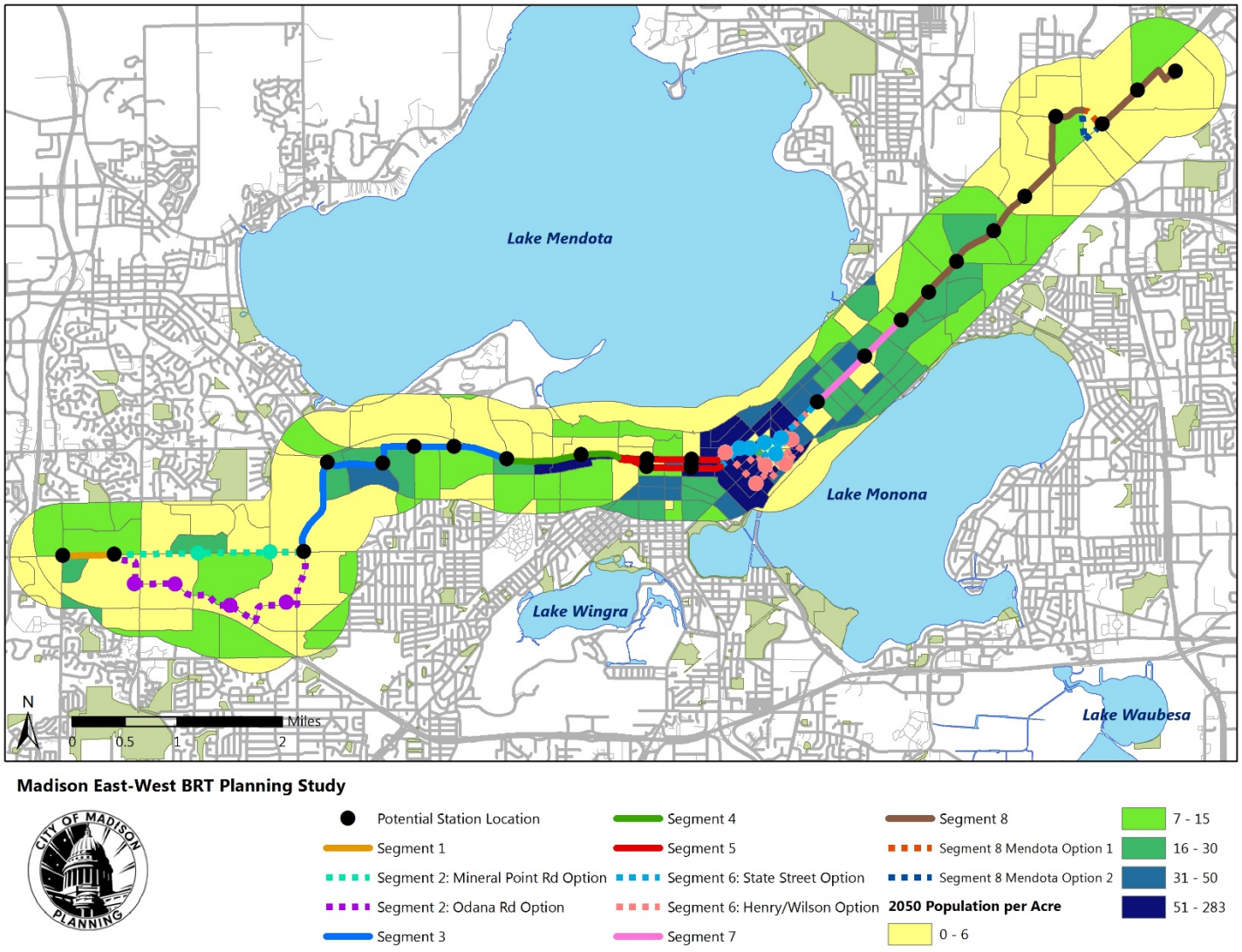
Figures 4 through 7 show the population and employment densities for 2010 and 2050. Both population and employment are forecasted to increase in the downtown and near east side. It should be noted that the population data does not include the population in dormitories or group quarters, therefore the population shown around the UW-Madison campus appears lower than it is.

Figure 4. 2010 Population Density



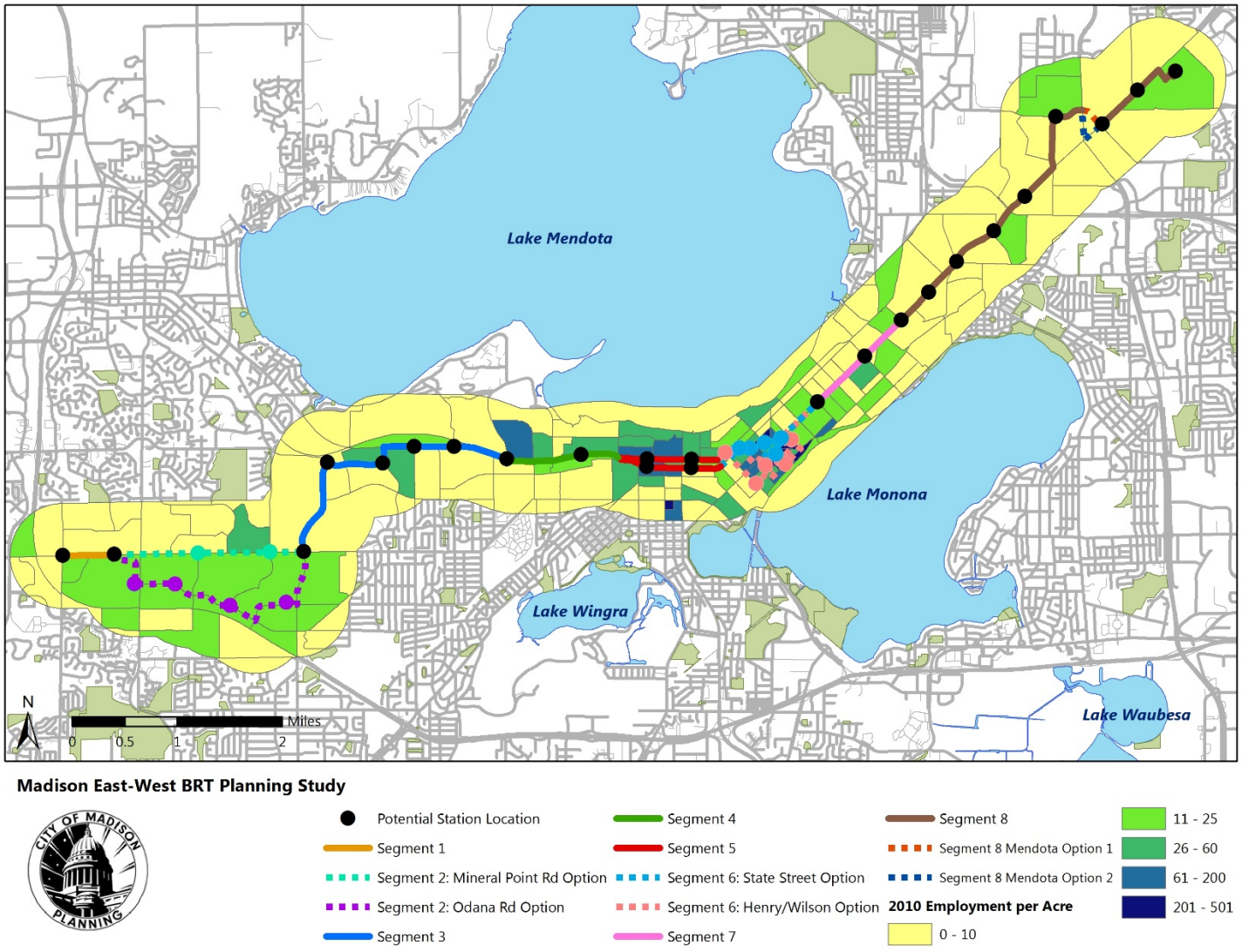
Source: MATPB

Figure 5. 2050 Population Density



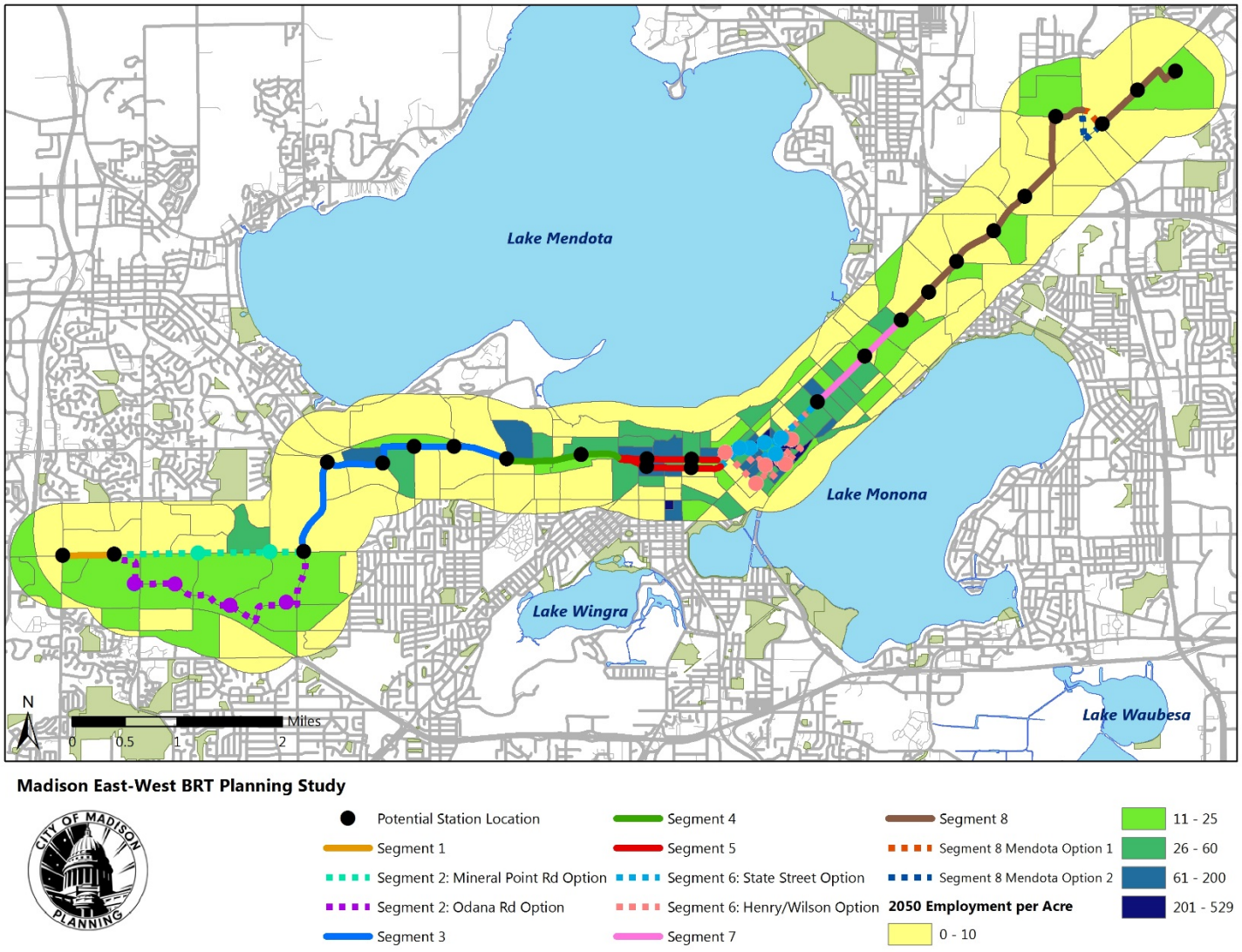
Source: MATPB

Figure 6. 2010 Employment Density



Source: MATPB

Figure 7. 2050 Employment Density



Source: MATPB

The following sections show the population and employment densities for 2010 and 2050 by each station area.

Segment 1

Population and employment densities for the station areas in Segment 1 are shown in Table 3. There are two stations in Segment 1, both population and employment are forecasted to increase by 2050 at each station.

Table 3. Segment 1 Station Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
Mineral Point and High Point	2,174	2,769	2,380	3,031	9%	2,231	2,842	2,501	3,186	12%
Mineral Point at West Field	1,549	1,973	2,049	2,610	32%	2,963	3,775	3,294	4,196	11%

Source: MATPB Population and Employment Forecast

Segment 2: Odana Road Option

In Segment 2: Odana Road option, population is expected to increase at all four proposed stations. All the stations would see increases in population density of over 60 percent. Employment density is also expected to increase at all stations, from 12 to 22 percent, see Table 4.

Table 4. Segment 2: Odana Road Option Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
West Towne Mall	254	323	883	1124	248%	3,852	4,907	4,473	5,698	16%
Odana at Grand Canyon	431	549	695	885	61%	3,154	4,018	3,850	4,904	22%
Odana at Research Park	1,097	1,398	1,904	2,425	74%	3,706	4,721	4,168	5,310	12%
West Transfer Point	189	240	391	498	107%	3,950	5,032	4,600	5,860	16%

Source: MATPB Population and Employment Forecast

Segment 2: Mineral Point Road Option

For the Segment 2: Mineral Point Road option, population density is also expected to increase at all stations, though there is a large range of what the increase will be (22 to 248 percent). Employment density is also forecasted to increase at all stations, from 8 to 16 percent, see Table 5.

Table 5. Segment 2: Mineral Point Road Option Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
West Towne Mall	254	323	883	1,124	248%	3,852	4,907	4,473	5,698	16%
Mineral Point at Yellowstone	2,109	2,685	2,575	3,279	22%	2,476	3,154	2,850	3,631	15%
Mineral Point at Rosa	1,086	1,383	1,607	2,047	48%	3,730	4,752	4,018	5,118	8%

Source: MATPB Population and Employment Forecast

Segment 3

The population density is forecasted to increase at all stations in Segment 3, with the highest expected increased at the University and Midvale station (85 percent) and the lowest increase at University and Shorewood (3 percent). Employment density is also forecasted to increase at all stations. The highest increase is at the Whitney Way and Sheboygan station (82 percent) and the lowest is at University and Shorewood (7 percent), see Table 6.

Table 6. Segment 3 Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
Mineral Point and Whitney Way	843	1,074	934	1,190	11%	2,582	3,289	2,779	3,540	8%
Whitney Way and Sheboygan	3,418	4,353	3,757	4,785	10%	1,014	1,292	1,845	2,350	82%
Sheboygan and Segoe	3,768	4,798	5,956	7,586	58%	3,859	4,916	5,978	7,615	55%
University and Midvale	1,659	2,113	3,075	3,917	85%	3,198	4,074	3,970	5,057	24%
University and Shorewood	2,155	2,745	2,210	2,815	3%	1,398	1,781	1,492	1,901	7%

Source: MATPB Population and Employment Forecast

Segment 4

There are two stations in Segment 4, both are forecasted to have an increase in population density. However, only the station at University and University Bay/Farley is forecasted to have an increase in employment density. The station at Campus and Chamberlain is forecasted to have zero-growth in employment, see Table 7.

Table 7. Segment 4 Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
University at University Bay/Farley	2,297	2,926	2,640	3,362	15%	7,122	9,073	9,048	11,526	27%
Campus at Chamberlain	3,183	4,053	3,882	4,944	22%	3,550	4,522	3,561	4,536	0%

Source: MATPB Population and Employment Forecast

Segment 5

There are four stations in Segment 5, these four stations function as two one-way paired stations. The stations at Johnson/University and Orchard are forecasted to have an increased in population density (18 to 27 percent) and no growth in employment density. The stations at Johnson/University and E. Campus Mall are forecasted to have an increase in population density (49 to 51 percent) and a minimal increase in employment density (2 percent), see Table 8.

Table 8. Segment 5 Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
University at Orchard	2,810	3,579	3,567	4,543	27%	14,806	18,861	14,818	18,876	0%
Johnson at Orchard	3,637	4,632	4,309	5,488	18%	14,177	18,060	14,210	18,102	0%
University at E. Campus Mall	8,365	10,653	12,489	15,906	49%	10,236	13,039	10,435	13,293	2%
Johnson at E. Campus Mall	8,362	10,650	12,626	16,079	51%	10,498	13,373	10,756	13,702	2%

Source: MATPB Population and Employment Forecast

Segment 6: State Street Option

All five stations in the Segment 6: State Street option are anticipated to have significant population density growth (64 to 108 percent). Employment density is also expected to grow for all stations, between 7 to 10 percent, see Table 9.

Table 9. Segment 6: Station Street Option Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
State at Dayton	12,500	15,920	21,246	27,058	70%	17,931	22,842	19,119	24,355	7%
Main at MLK Jr.	7,666	9,763	15,915	20,269	108%	22,460	28,611	24,009	30,585	10%
E. Washington at Webster	7,517	9,573	13,998	17,827	86%	21,163	26,959	23,201	29,555	7%
State at Johnson/Henry	13,787	17,558	22,654	28,851	64%	12,388	15,781	13,219	16,839	7%
Mifflin at Wisconsin	10,744	13,683	19,056	24,268	77%	22,665	28,873	24,262	30,907	7%

Source: MATPB Population and Employment Forecast

Segment 6: Henry/Wilson Option

All eight stations in the Segment 6 Henry/Wilson option are anticipated to have significant population density growth (60 to 135 percent). Employment density is expected to grow for all stations, between 5 to 11 percent, see Table 10.

Table 10. Segment 6: Henry/Wilson Option Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
State at Johnson/Henry	13,787	17,558	22,654	28,851	64%	12,388	15,781	13,219	16,839	7%
Fairchild at Main	8,717	11,101	17,607	22,424	102%	21,624	27,546	22,871	29,135	6%
Doty at MLK Jr.	6,179	7,870	13,318	16,962	116%	21,899	27,897	23,304	29,687	6%
E. Washington at Webster	7,517	9,573	13,998	17,827	86%	21,163	26,959	23,201	29,555	10%
Butler at Main	5,858	7,460	11,298	14,389	93%	19,443	24,768	21,501	27,390	11%
Wilson at MLK Jr.	4,816	6,134	11,336	14,437	135%	21,092	26,869	22,224	28,311	5%
Broom at Doty	8,595	10,947	16,152	20,571	88%	11,831	15,071	12,484	15,903	6%
Broom at Gorham	13,649	17,383	21,894	27,883	60%	9,444	12,031	10,170	12,955	8%

Source: MATPB Population and Employment Forecast

Segment 7

There are three stations in Segment 7, all of which are expected to see an increase in population density (32 to 66 percent). Employment density is anticipated to grow significantly in this segment (84 to 123 percent), see Table 11.

Table 11. Segment 7 Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
E. Washington at Livingston	4,681	5,962	7,769	9,894	66%	3,944	5,024	8,784	11,190	123%
E. Washington at Baldwin	3,257	4,148	4,790	6,100	47%	2,267	2,888	4,556	5,804	101%
E. Washington at First	3,283	4,181	4,320	5,502	32%	1,685	2,146	3,092	3,939	84%

Source: MATPB Population and Employment Forecast

Segment 8

There are eight stations in Segment 8. Population growth is anticipated to be more moderate in this segment with a few stations seeing a slight decline in population density (-3 to 20 percent). Employment density is expected to increase at all station areas (4 to 47 percent), see Table 12.

Table 12. Segment 8 Population and Employment

Station	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
E. Washington at Fourth	5,965	7,597	6,763	8,613	13%	2,188	2,787	3,226	4,110	47%
E. Washington at Milwaukee	3,439	4,380	3,945	5,024	15%	918	1,169	1,274	1,623	39%
E. Washington at Marquette	2,999	3,819	2,959	3,769	-1%	1,506	1,918	1,559	1,986	4%
E. Washington at Melvin	1,591	2,027	1,571	2,001	-1%	719	916	823	1,048	14%
Anderson at Madison College	482	614	532	677	10%	2,382	3,034	2,608	3,322	9%
E. Washington at Mendota	690	878	671	854	-3%	1,215	1,548	1,369	1,744	13%
E. Washington at Thierer	557	709	624	794	12%	1,771	2,256	1,950	2,484	10%
East Towne Mall	736	938	881	1,121	20%	2,790	3,554	3,048	3,883	9%

Source: MATPB Population and Employment Forecast

Summary by Segment

Table 13 below summarizes population and employment for each of the segments. These segments do not overlap with each other and can be added together to calculate population and employment totals for multiple segments. Only one Segment 2 option and one Segment 6 option should be chosen.

Population in all segments is anticipated to increase, with the largest population growth occurring the central segments and the least growth occurring in the western and eastern ends of the corridor. Employment is also anticipated to increase in all segments, with employment density

generally ranging from about 10 to 20 percent growth. However, Segment 7 is forecasted to have 114 percent employment density growth, significantly higher than the other segments throughout the corridor.

Table 13. Segment Population and Employment

Segment	2010 Pop.	2010 Pop. Density	2050 Pop.	2050 Pop. Density	Pop. Density % Change	2010 Emp.	2010 Emp. Density	2050 Emp.	2050 Emp. Density	Emp. Density % Change
1	3,008	2,824	3,207	3,011	7%	2,728	2,562	3,012	2,828	10%
2 Mineral Point	3,041	1,552	4,533	2,314	49%	8,825	4,505	9,961	5,085	13%
2 Odana	1,782	719	3,399	1,371	91%	11,547	4,656	13,436	5,418	16%
3	8,875	2,939	11,117	3,681	25%	8,122	2,689	10,571	3,500	30%
4	5,261	3,484	6,276	4,156	19%	10,119	6,701	12,056	7,984	19%
5	11,210	7,488	16,159	10,794	44%	20,485	13,684	20,767	13,872	1%
6 State St	14,665	8,225	25,770	14,453	76%	25,208	14,138	27,544	15,448	9%
6 Henry/Wilson	17,205	13,720	29,911	23,852	74%	26,957	21,497	29,654	23,648	10%
7	8,749	4,598	12,659	6,652	45%	5,633	2,960	12,037	6,325	114%
8	9,322	2,017	9,955	2,153	7%	9173	1,984	10336	2,236	13%

Source: MATPB Population and Employment Forecast

Equitable Access to Transit

One of the goals of the East-West BRT Study is to evaluate equitable access to this transit investment in accordance with federal laws and regulations including Title VI (Title VI) of the 1964 Civil Rights Act and Executive Order (EO) 12898, Environmental Justice for Low Income & Minority Populations. The purpose of this section is to identify where populations protected by these laws and regulations reside near proposed stations in an effort to gauge whether the project may adversely affect or benefit low-income populations and people of color. This analysis may also serve as a guide to identifying communities that may benefit from additional outreach during subsequent phases of planning and design. This analysis can also be used to complete the Racial Equity and Social Justice Initiative (RESJI) Tool in future project phases. This tool seeks to establish racial equity and social justice as core principles in all decisions, policies and function of the City of Madison.

One way to measure equitable access is to determine how many people live in the three population groups that tend to have less access to transit: the population living below poverty, people of color, and zero-car households. The following analysis summarizes where people in each of these three groups live within a half-mile of each potential station and within a half-mile of each segment.

Methodology

The total population and total number of households were calculated to determine the percentage of the population living below poverty, people of color, and zero-car households within a half-mile of each station and within a half-mile of the station areas within a segment. The number of legally binding affordable housing units was also calculated for each of these areas.

- The population living below poverty, people of color, and zero-car households was combined with the Census Block Group GIS shapefile. Half-mile buffers were created around each station for each alternative.
- The total population and total number of households within a half-mile of each station were calculated.
- The population living below poverty, people of color, and zero-car households was then calculated.
    - People of color, defined as minority in guidance documents, include American Indian and Alaska Native; Asian; Black or African American; Hispanic or Latino; Native Hawaiian and other Pacific Islander; and two or more races.
    - For this analysis, low-income populations were identified as persons living below poverty as defined by the U.S. Census Bureau.
- The percentage of each group was determined by dividing the population or number of households by the total population or total households.
- Per FTA guidance, these estimates were created by assigning population totals to each station area based on the prorated amount of area that falls within the half-mile circle around the station.

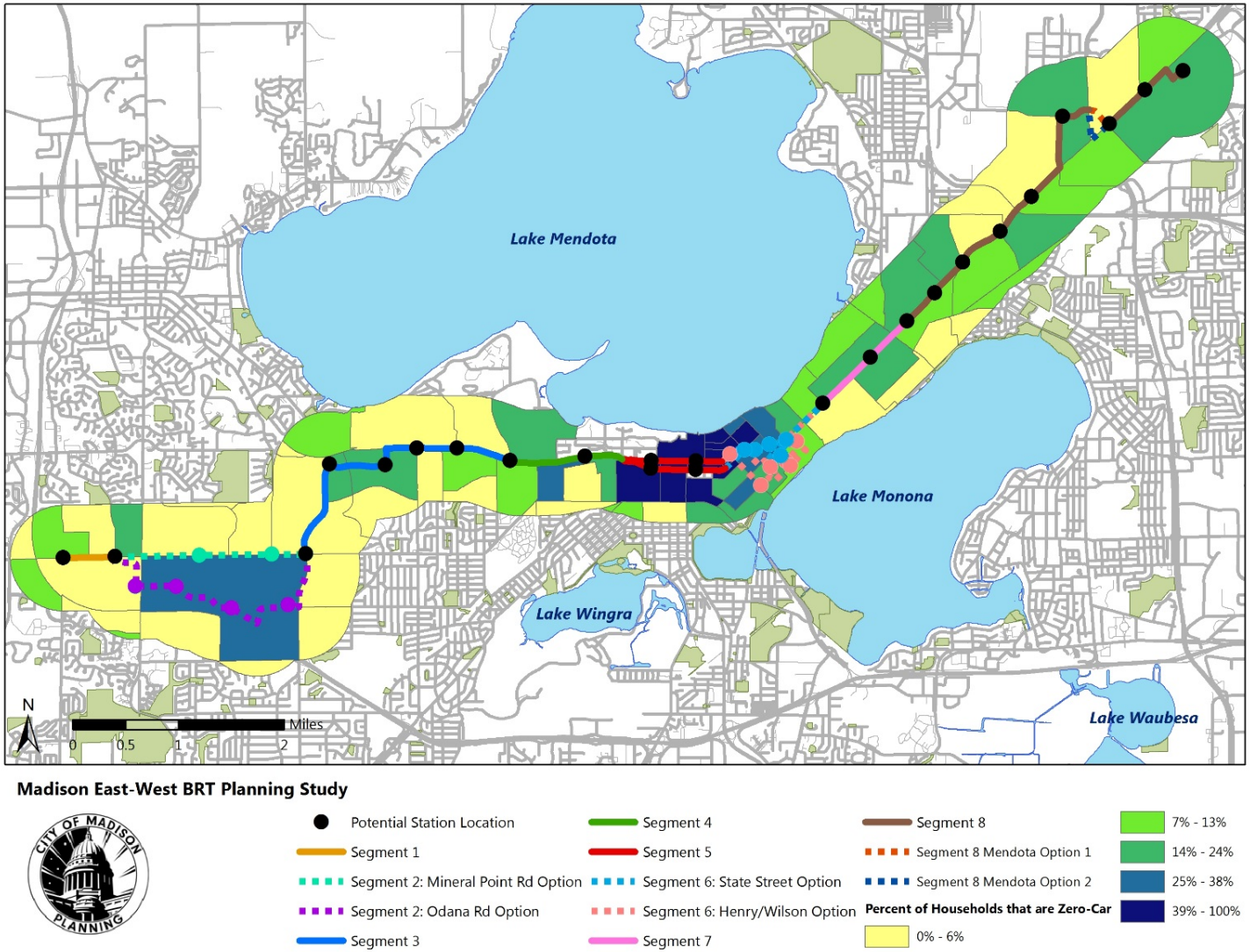
Data Sources

Data from the U.S. Census Bureau American Community Survey 2013-2017 were used to calculate total population, total households, population living below poverty, people of color, and zero-car households. The National Housing Preservation Database (2018) was used to calculate the number of affordable housing units near each station area.

Summary of Results

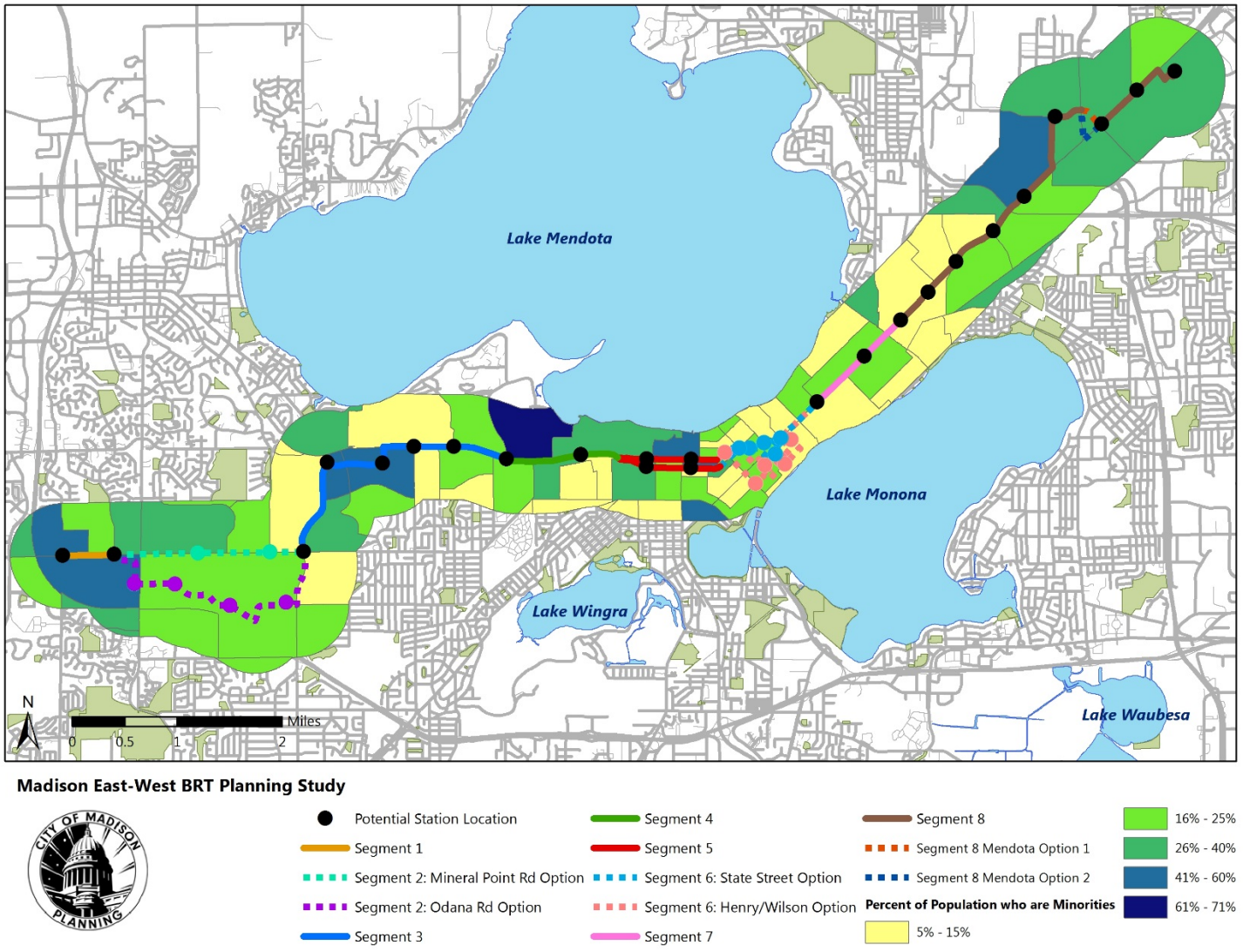
Figures 8 through 10 show the locations of zero-car households, minority population and households below poverty. Most zero-car households are in downtown and on the west side of the corridor. The minority population lives throughout the corridor. Households that are below poverty are also spread throughout the corridor, with more households near downtown and campus.

Figure 8. Zero Car Households



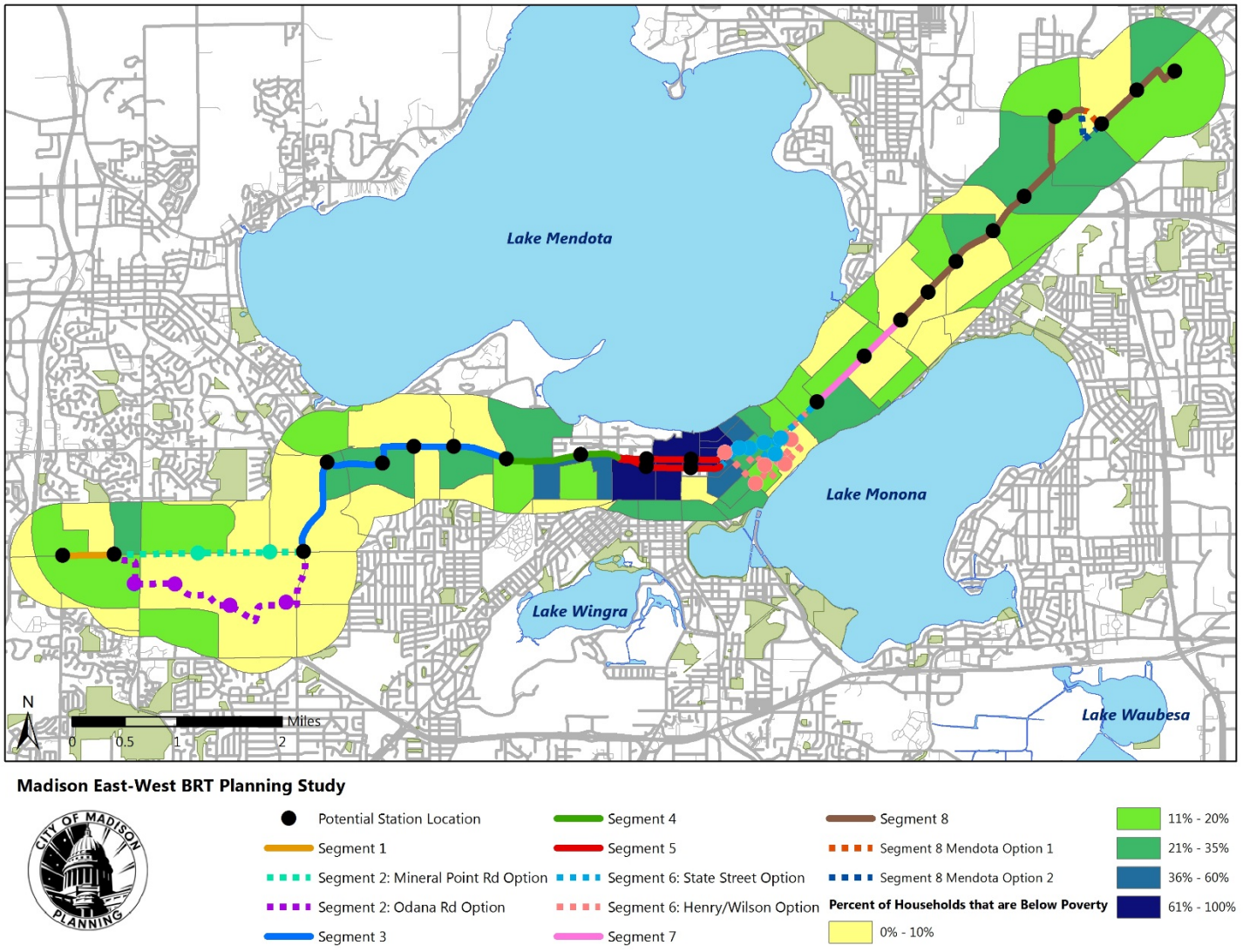
Source: U.S. Census American Community Survey, 2013-2017

Figure 9. Minority Population



Source: U.S. Census American Community Survey, 2013-2017

Figure 10. Households Below Poverty



Source: U.S. Census American Community Survey, 2013-2017

The following tables summarize the equity analysis for each station area and segment in the East-West BRT corridor.

Segment 1

The stations in Segment 1 have relatively few households that do not have a vehicle or that are below poverty. Approximately 40 percent of the population are minorities. There are no legally binding affordable housing units at either station area, see Table 14.

Table 14. Segment 1 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
Mineral Point at High Point	2,067	1,041	86	8%	123	12%	955	46%	0
Mineral Point at West Field	1,414	696	53	8%	106	15%	521	37%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 2: Odana Road Option

In Segment 2: Odana Road Option, the percent of households that do not have a vehicle ranges from 10 to 26 percent. Households that are below poverty ranges from 6 to 15 percent. The percent of the population who are minorities is between 18 to 37 percent. There are no legally binding affordable housing units in the station areas, see Table 15.

Table 15. Segment 2: Odana Road Option Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
West Towne Mall	1,055	558	42	8%	68	12%	394	37%	0
Odana at Grand Canyon	563	349	75	21%	29	8%	139	25%	0
Odana at Research Park	476	313	80	26%	25	8%	105	22%	0
West Transfer Point	633	339	67	20%	20	6%	113	18%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 2: Mineral Point Road Option

There are three stations in Segment 2: Mineral Point Road Option. Approximately 10 percent of these households do not have a vehicle, 3 to 15 percent of households are below poverty and 18 to 37 percent of the population are minorities. There are no legally binding affordable housing units, see Table 16.

Table 16. Segment 2: Mineral Point Road Option Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
West Towne Mall	1,055	558	42	8%	68	12%	394	37%	0
Mineral Point at Yellowstone	1,222	612	58	9%	58	9%	359	29%	0
Mineral Point at Rosa	827	421	48	11%	14	3%	151	18%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 3

There are five stations in Segment 3. Households that do not have a vehicle range from 5 to 17 percent; 4 to 19 percent of households are below poverty and 18 to 48 percent of the population are minorities. There are several affordable housing units at each station area in this segment except for at the University and Shorewood station where there are no affordable housing units, see Table 17.

Table 17. Segment 3 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
Mineral Point at Whitney Way	1,236	561	28	5%	21	4%	221	18%	64
Whitney Way at Sheboygan	2,542	1,309	191	15%	236	18%	1,021	40%	56
Sheboygan at Segoe	2,988	1,707	285	17%	321	19%	1,445	48%	156
University at Midvale	2,113	1,114	132	12%	178	16%	712	34%	156
University at Shorewood	2,127	1,069	82	8%	173	16%	421	20%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 4

There are two stations in this segment. Approximately 18 percent of these households do not have a vehicle. The number of households below poverty ranges from 24 to 46 percent; the station with 46 percent of households below poverty is closer to the campus and likely reflects that there are more students living in this area. The percent of the population who are minorities is approximately 28 percent. There are no legally binding affordable housing units at either station area, see Table 18.

Table 18. Segment 4 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
University at University Bay	2,338	1,124	169	15%	275	24%	740	32%	0
Campus at Chamberlain	4,472	1,170	255	22%	544	46%	1,068	24%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 5

There are four stations in Segment 5, these four stations function as two one-way paired stations. These stations are in the middle of the campus and likely have a high number of students living here. For the station at Johnson/University at Orchard approximately 58 percent of households do not have a vehicle and 86 percent of households are below poverty. Approximately 28 percent of the population are minorities. For the station at Johnson/University at E. Campus Mall, approximately 55 percent of households do not have a vehicle and 75 percent are below poverty and 24 percent of the population are minorities. There are no legally binding affordable housing units at any of these stations, see Table 19.

Table 19. Segment 5 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
University at Orchard	6,340	1,491	883	59%	1,294	87%	1,781	28%	0
Johnson at Orchard	7,081	1,783	1,023	57%	1,511	85%	1,892	27%	0
University at E. Campus Mall	14,571	4,006	2,274	57%	3,012	75%	3,491	24%	0
Johnson at E. Campus Mall	14,349	3,870	2,099	54%	2,853	74%	3,463	24%	0

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 6: State Street Option

There are five stations in the Segment 6: State Street Option. The number of households that do not have a vehicle ranges from 24 to 45 percent. The number of households that are below poverty ranges from 21 to 51 percent. The number of people who are minorities is relatively consistent at these stations, ranging from 13 to 17 percent. There are several affordable housing units at all of these stations, ranging from 147 to 337, see Table 20.

Table 20. Segment 6: State Street Option Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
State at Dayton	13,155	6,217	2,484	40%	2,647	43%	2,018	15%	275
Main at MLK Jr.	6,557	3,606	919	25%	789	22%	931	14%	332
E. Washington at Webster	6,750	3,849	926	24%	827	21%	849	13%	147
State at Johnson/Henry	15,067	6,806	3,053	45%	3,447	51%	2,540	17%	275
Mifflin at Wisconsin	9,466	4,960	1,590	32%	1,452	29%	1,223	13%	337

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 6: Henry/Wilson Option

There are eight stations in Segment 6: Henry/Wilson Option. The number of households that do not have a vehicle ranges from 21 to 49 percent. The number of households that are below poverty ranges from 19 to 58 percent. The number of people who are minorities is relatively consistent at these stations, ranging from 13 to 19 percent. There are several affordable housing units at all of these stations, ranging from 80 to 275, see Table 21.

Table 21. Segment 6: Henry/Wilson Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
State at Johnson/Henry	15,067	6806	3,053	45%	3,447	51%	2,540	17%	275
Fairchild at Main	7,827	4062	1,184	29%	1,178	29%	1,162	15%	215
Doty at MLK Jr.	5,316	2961	683	23%	590	20%	820	15%	80
E. Washington at Webster	6,750	3849	926	24%	827	21%	849	13%	147
Butler at Main	5,193	3022	621	21%	593	20%	669	13%	89
Wilson at MLK Jr.	4,430	2439	541	22%	456	19%	712	16%	80
Broom at Doty	7,766	3964	1,124	28%	1,239	31%	1,227	16%	200
Broom at Gorham	16,727	6459	3,153	49%	3,776	58%	3,154	19%	260

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 7

There are three stations in Segment 7. The number of households that do not have a vehicle ranges from 11 to 14 percent. The number of households that are below poverty ranges from 7 to 19 percent. The number of people who are minorities is relatively consistent at these stations, ranging from 13 to 19 percent. There are several affordable housing units at all of these stations, ranging from 71 to 206, see Table 22.

Table 22. Segment 7 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
E. Washington at Livingston	3,896	2,176	274	13%	407	19%	506	13%	112
E. Washington at Baldwin	2,963	1,541	218	14%	168	11%	551	19%	206
E. Washington at First	2,957	1,557	169	11%	107	7%	433	15%	71

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Segment 8

There are eight stations in Segment 8. The number of households that do not have a vehicle ranges from 8 to 13 percent. The number of households that are below poverty ranges from 7 to 21 percent. The number of people who are minorities ranges from 11 to 38 percent. Almost all stations have some affordable housing units within the station, East Washington at Thierer is the only station in this segment that does not have any affordable housing units, see Table 23.

Table 23. Segment 8 Environmental Justice Population

Station	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
E. Washington at Fourth	4,554	2,346	256	11%	155	7%	516	11%	71
E. Washington at Milwaukee	2,287	1,400	142	10%	184	13%	380	14%	24
E. Washington at Marquette	2,287	1,217	92	8%	183	15%	375	16%	148
E. Washington at Melvin	1,079	526	50	10%	89	17%	273	25%	4
Anderson at Madison College	251	115	10	9%	18	16%	96	38%	98
E. Washington at Mendota	716	303	29	10%	58	19%	236	33%	17
E. Washington at Thierer	840	352	42	12%	60	17%	218	26%	0
East Towne Mall	1,043	432	58	13%	92	21%	233	22%	17

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Summary by Segment

Table 24 below summarizes environmental justice populations for each of the segments. These segments do not overlap with each other and can be added together to calculate zero-car households, households below poverty, and minority population totals for multiple segments. Only one Segment 2 option and one Segment 6 option should be chosen.

There are more households that do not have a vehicle in the middle of the corridor than on the western or eastern ends, approximately 10 percent on the ends and 50 percent in the middle. This pattern is consistent for households below poverty, there are more in the middle of the corridor and less on the ends (10 to 76 percent). The population who are minorities are more consistent throughout the corridor, though they are a smaller percentage in the downtown segments. The minority population ranges from 13 to 42 percent.

Table 24. Environmental Justice Population by Segment

Segment	Total Population	Total Households	Zero-Car Households	Zero-Car Households %	Households Below Poverty	Households Below Poverty %	Minorities	% of Population who are Minorities	Legally Binding Affordable Housing Units
1	2,635	1,302	112	9%	166	13%	1,094	42%	0
2 Mineral Point	2,594	1,366	124	9%	133	10%	829	32%	0
2 Odana	2,224	1,286	198	15%	123	10%	651	29%	0
3	7,997	4,109	494	12%	634	15%	2,692	34%	276
4	6,334	2,172	377	17%	734	34%	1,712	27%	0
5	20,237	5,518	3,066	56%	4,186	76%	4,907	24%	0
6 State St	13,000	6,682	2,041	31%	1,994	30%	1,734	13%	347
6 Henry/Wilson	15,345	7,976	2,362	30%	2,408	30%	2,065	13%	355
7	7,593	4,029	479	12%	480	12%	1,168	15%	374
8	7761	3791	382	10%	568	15%	1518	20%	270

Source: U.S. Census 2013-2017 American Community Survey, National Housing Preservation Database 2018

Land Use and Development Potential

An evaluation measure for the East-West BRT is the ability to foster development around station areas that is consistent with adopted planning, land uses, and opportunities. This evaluation measure is consistent with criteria examined by FTA when rating potential projects for funding eligibility. This section provides an overview of the methodology and results of an analysis of each alternative and its station site options for economic development potential.

Methodology

This analysis consists of two quantitative metrics: physically unconstrained land and transit supportiveness (a composite of physically unconstrained land and land with TOD zoning). The two metrics are described below in greater detail.

Physically Unconstrained Land

- Physically unconstrained land accounts for the permanent physical characteristics within a half-mile station area. It quantifies the percentage of the station area where development is possible, excluding unbuildable features such as waterways, parks, and roadways/rights-of-way.
- As a reflection of physical/environmental characteristics, this metric is fixed and is generally outside the control of local land use authorities. As a baseline, this sets the scale of capacity potential – the size of the frame or footprint that communities can work with.
- This metric is presented as acreage and as a percentage of the total station area to provide an understanding of gross buildable space in terms of acreage, as well as an indication of the proportion of buildable land in the overall station area.
- The source of this data is GIS data from the City of Madison that provides details on land use, parcel/property boundaries, rights-of-way, and natural resources.
- This information may be used to support policy amendments and local development controls that deliberately increase planned densities on land where development is feasible at station locations where significant portions of the station areas are undevelopable.

Transit-Supportiveness

- Transit supportiveness calculates the proportion of physically unconstrained land in the half-mile station areas that is also land with TOD zoning. The metric is presented as a percentage to reflect this ratio.
- Land with TOD zoning is defined as land with the following zoning classifications:
    - Commercial Center, Commercial Transitional, Downtown Core, Downtown Residential, Mixed use Center, Neighborhood Mixed use, Planned Development, Suburban Employment Center, Traditional Employment, Traditional Shopping Street, Urban Mixed Use, and Urban Office Residential.
    - It does not include: Agricultural, Campus Institutional, Conservancy, Industrial, Parks and Rec, and Suburban Residential.
- The transit-supportiveness metric reflects how effectively the developable or buildable portion of the station area is maximized for transit-supportive uses. Unlike the physically unconstrained land

measurement, which is fixed, this metric is based on planning policy and this is within the control and authority of policy-makers.

Data Sources

The analysis of development potential around the station areas in the corridor used GIS data from the City of Madison.

Summary of Results

The tables in the following subsections summarize the physically unconstrained acres and acres that are zoned for TOD.

Segment 1

Approximately 39 to 46 percent of the station areas in Segment 1 are unconstrained. Of these unconstrained acres, 72 to 85 percent have zoning that would be supportive of TOD, see Table 25.

Table 25. Segment 1 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
Mineral Point and High Point	196	39%	141	72%
Mineral Point at West Field	233	46%	199	85%

Source: City of Madison

Segment 2: Odana Road Option

There are four stations in this segment and approximately 37 to 46 percent of the station areas in Segment 2: Odana Road Option are unconstrained. Of these unconstrained acres, 84 to 98 percent have zoning that would be supportive of TOD, see Table 26.

Table 26. Segment 2: Odana Road Option Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
West Towne Mall	211	42%	185	88%
Odana at Grand Canyon	188	37%	157	84%
Odana at Research Park	226	45%	220	98%
West Transfer Point	229	46%	220	96%

Source: City of Madison

Segment 2: Mineral Point Road Option

There are three stations in this segment, all of which approximately 44 percent of the station area is unconstrained. Of these unconstrained acres, 57 to 88 percent have zoning that would be supportive of TOD, see Table 27.

Table 27. Segment 2: Mineral Point Road Option Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
West Towne Mall	211	42%	185	88%
Mineral Point at Yellowstone	225	45%	129	57%
Mineral Point at Rosa	230	46%	111	64%

Source: City of Madison

Segment 3

There are five stations in Segment 3. There is a wider range of unconstrained area here than the previous segments. Unconstrained acres range from 20 to 43 percent. Of those unconstrained acres, 14 to 61 percent are supportive of TOD, see Table 28. It should be noted that half of the station areas at University at Midvale and University at Shorewood stations fall within the Village of Shorewood Hills and zoning information is not available, therefore the unconstrained acres and TOD acres presented below only includes the land that falls within the City of Madison.

Table 28. Segment 3 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
Mineral Point at Whitney Way	215	43%	111	52%
Whitney Way at Sheboygan	199	40%	66	33%
Sheboygan at Segoe	174	35%	50	29%
University at Midvale	110	22%	67	61%
University at Shorewood	98	20%	14	14%

Source: City of Madison

Segment 4

There are two stations in this segment. The station at University and University Bay is relatively constrained and not zoned to be supportive of TOD. The station at Campus and Chamberlain is less constrained (40 percent), but is also not supportive of TOD (5 percent), see Table 29.

Table 29. Segment 4 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
University at University Bay	115	23%	14	12%
Campus at Chamberlain	201	40%	9	5%

Source: City of Madison

Segment 5

There are four stations in Segment 5, these four stations function as two one-way paired stations. The station area at University/Johnson and Orchard is approximately 41 percent unconstrained and the zoning is 23 to 31 percent favorable for TOD. The station at University/Johnson and E. Campus Mall is about 38 percent unconstrained. Of this area, the zoning is slightly more favorable for TOD (45 to 48 percent), see Table 30.

Table 30. Segment 5 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
University at Orchard	205	41%	47	23%
Johnson at Orchard	212	42%	65	31%
University at E. Campus Mall	188	37%	85	45%
Johnson at E. Campus Mall	201	40%	95	48%

Source: City of Madison

Segment 6: State Street Option

There are five stations in this segment, about a third of the area is unconstrained. Of these unconstrained acres, the majority of is suitable for TOD. However, this includes the State Capitol which is zoned as Downtown Core, a zoning designation that is generally suitable for development, it is unlikely that the Capitol would ever be redeveloped and therefore the 12.9 acres that make up the Capitol Square have been excluded from the total TOD acres, see Table 31.

Table 31. Segment 6: State Street Option Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
State at Dayton	175	35%	162	93%
Main at MLK Jr.	156	31%	142	91%
E. Washington at Webster	156	31%	140	90%
State at Johnson/Henry	170	34%	158	93%
Mifflin at Wisconsin	171	34%	158	92%

Source: City of Madison

Segment 6: Henry/Wilson Option

There are eight stations in this segment, about a third of the area is unconstrained. Of these unconstrained acres, most of it is suitable for TOD. Similar to the other Segment 6 option, this includes the State Capitol which is zoned as Downtown Core, a zoning designation that is generally suitable for development, however, it is unlikely that the Capitol would ever be redeveloped and therefore the 12.9 acres that make up the Capitol Square have been excluded from the total TOD acres, see Table 32.

Table 32. Segment 6: Henry/Wilson Option Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
State at Johnson/Henry	170	34%	158	93%
Fairchild at Main	157	31%	141	90%
Doty at MLK Jr.	127	25%	114	89%
E. Washington at Webster	167	33%	146	87%
Butler at Main	156	31%	137	88%
Wilson at MLK Jr.	116	23%	102	88%
Broom at Doty	144	29%	132	92%
Broom at Gorham	173	34%	148	86%

Source: City of Madison

Segment 7

There are three stations in Segment 7. Approximately 40 percent of these stations are unconstrained. The unconstrained acres that are suitable for TOD vary from 38 to 67 percent. The station at Livingston, closer to downtown is more suitable for TOD, see Table 33.

Table 33. Segment 7 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
E. Washington at Livingston	191	38%	128	67%
E. Washington at Baldwin	206	41%	96	47%
E. Washington at First	199	40%	76	38%

Source: City of Madison

Segment 8

There are eight stations in Segment 8. There is a wide range of unconstrained acres in these station areas, ranging from 35 to 72 percent. The station at E. Washington and Fourth has the highest unconstrained acres in the corridor because of the large amount of single-family housing. Also, for this reason, the land suitable for zoning at this station is only 19 percent. The unconstrained land around the station at East Towne Mall has the highest percent of acres in this segment that are suitable for TOD, 86 percent, see Table 34.

Table 34. Segment 8 Station Area TOD Supportive Zoning

Station	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
E. Washington at Fourth	362	72%	68	19%
E. Washington at Milwaukee	186	37%	37	20%
E. Washington at Marquette	176	35%	43	24%
E. Washington at Melvin	174	35%	41	23%
Anderson at Madison College	224	45%	35	16%
E. Washington at Mendota	211	42%	98	51%
E. Washington at Thierer	221	44%	94	43%
East Towne Mall	218	43%	187	86%

Source: City of Madison

Summary by Segment

Table 35 below summarizes TOD supportive zoning for each of the segments. These segments do not overlap with each other and can be added together to calculate unconstrained acre and TOD acre totals for multiple segments. Only one Segment 2 option and one Segment 6 option should be chosen.

The segments that have the least amount of land that has TOD supportive zoning are Segments 4 and 8. The segments with the most of amount of unconstrained land that has TOD supportive zoning are Segments 1, 2 (Mineral Point and Odana), 5, and 6 (Henry/Wilson and State Street).

Table 35. TOD Supportive Zoning by Segment

Segment	Unconstrained Acres	% Unconstrained Acres	TOD Acres	% TOD Acres
1	281	41%	210	75%
2 Mineral Point	553	44%	400	72%
2 Odana	677	43%	631	93%
3	637	37%	265	42%
4	317	36%	21	6%
5	369	38%	151	41%
6 Henry/Wilson	308	27%	281	91%
6 State Street	251	31%	228	91%
7	482	40%	217	45%
8	1,192	40%	406	34%

Source: City of Madison