Powerline Road – Lane Elimination

Commercial Boulevard to Oakland Park Boulevard

City of Oakland Park, Florida

traffic study

prepared for:

City of Oakland Park

Traf Tech
ENGINEERING, INC.

March 2015

Traf Tech
ENGINEERING, INC.

March 19, 2015

Mr. Christopher M. Gratz, AICP
Senior Planner – City of Oakland Park
Engineering & Community Development
5399 North Dixie Highway, Suite 3
Oakland Park, Florida 33334

Re: Powerline Road – Lane Elimination Evaluation
Commercial Boulevard to Oakland Park Boulevard

Dear Chris:

Traf Tech Engineering, Inc. is pleased to provide you with the results of the Lane Elimination Study for Powerline Road from Commercial Boulevard to Oakland Park Boulevard within the City of Oakland Park in Broward County, Florida. As indicated in the attached traffic evaluation, current and future traffic conditions allow the reduction in through lanes from six (6) to four (4) without degrading safety or level of service.

It has been a pleasure working with the City of Oakland Park on this project.

Sincerely,

TRAF TECH ENGINEERING, INC.

Joaquin E. Vargas, P.E.
Senior Transportation Engineer

8400 North University Drive, Suite 309, Tamarac, Florida 33321
Tel: (954) 582-0988 Fax: (954) 582-0989

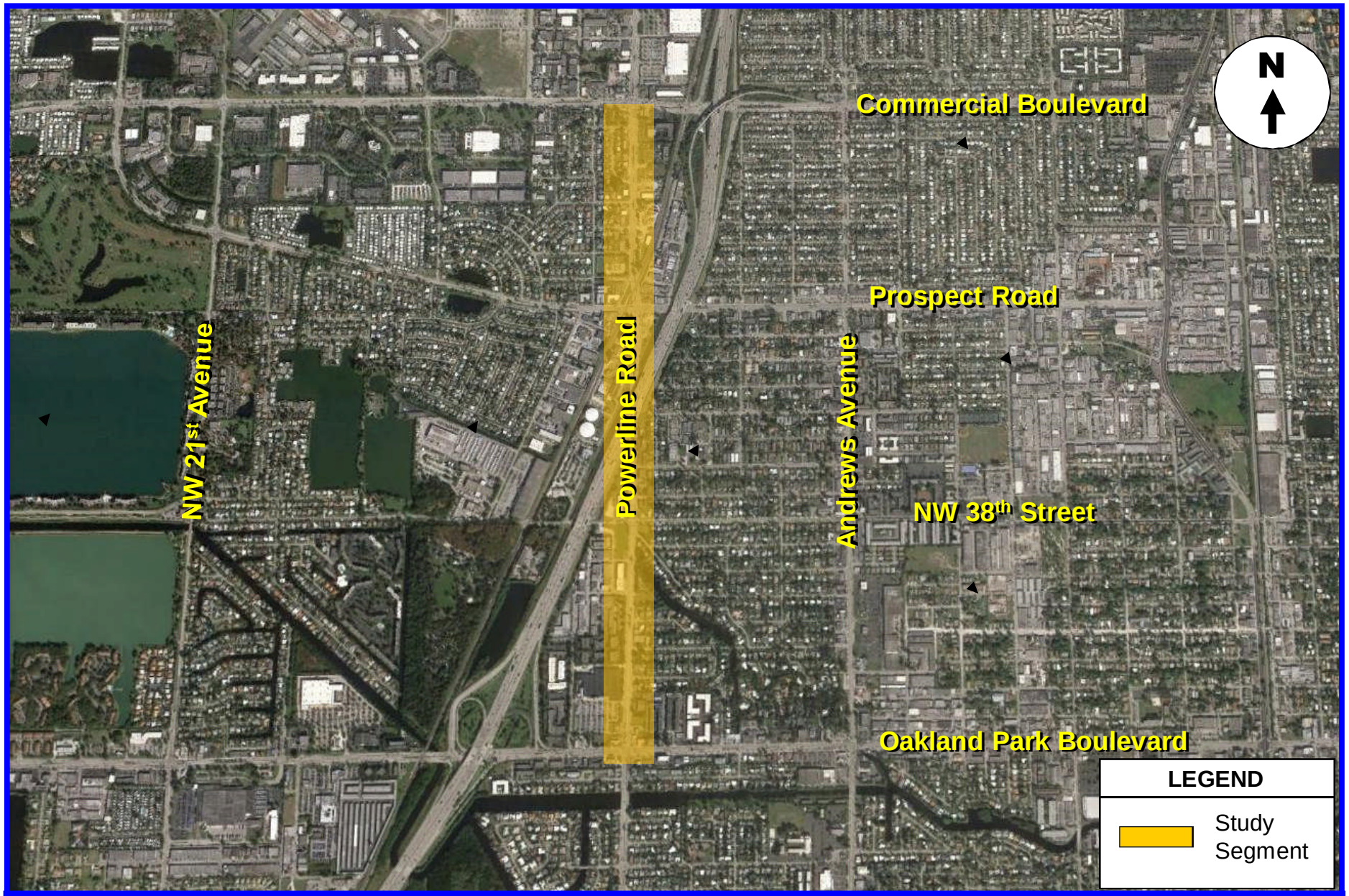
INTRODUCITON

The City of Oakland Park is seeking to reduce the number of through lanes on Powerline Road, between Commercial Boulevard on the north and Oakland Park Boulevard on the south from six (6) lanes to four (4) lanes. Figure 1 on the following page shows the study segment of Powerline Road where a "Road Diet" is desired by "A City on The Move".

As a sub-consultant to Craven Thompson & Associates, Inc., Traf Tech Engineering, Inc. was retained by the City of Oakland Park to conduct the necessary traffic evaluation in order to determine the feasibility of the subject lane-reduction project.

This study is divided into four (4) sections, as listed below:

1. Existing Conditions
2. Future Traffic Volumes
3. Lane Reduction Evaluation
4. Conclusions and Recommendations



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STUDY SEGMENT OF POWERLINE ROAD

FIGURE 1
Powerline Road - Lane Elimination
Oakland Park, Florida

EXSTING CONDITIONS

Powerline Road, between Commercial Boulevard on the north and Oakland Park Boulevard on the south, is a State-maintained (State Road 845) principal arterial roadway with six (6) through lanes in each direction, has a landscaped raised median and left and right-turn lanes at major intersections. The posted speed limit of the study segment of Powerline Road is 45 miles per hour.

Signalized Intersections

There are four signalized intersections located between Commercial Boulevard and Oakland Park Boulevard. These signalized locations include:

1. Commercial Boulevard
2. Prospect Road
3. NW 38th Street
4. Oakland Park Boulevard

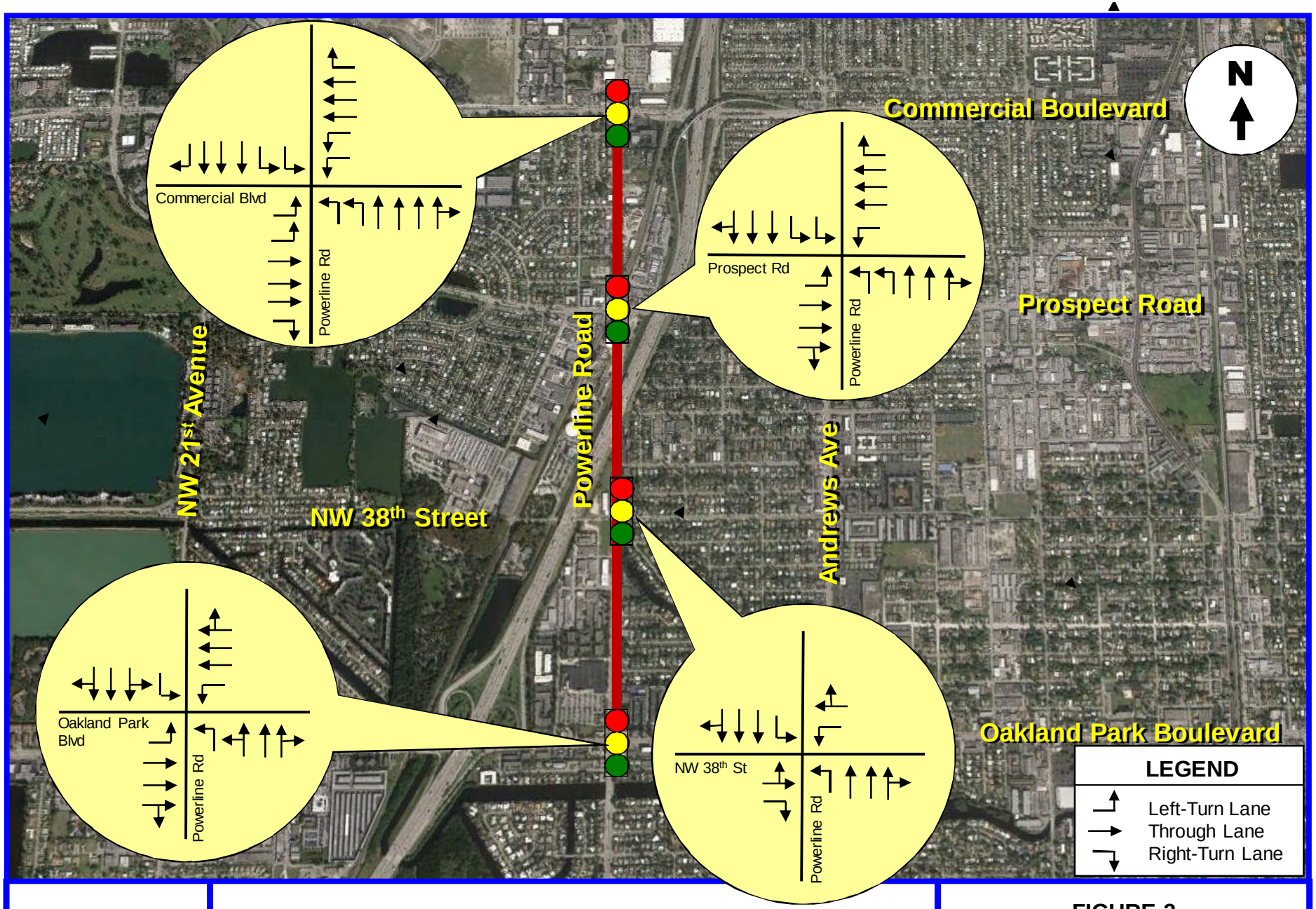
The existing lane geometry (number of lanes and lane assignments) of the four signalized intersections is graphically depicted in Figure 2.

Access Classification

According to FDOT, Powerline Road is classified as an Access Class 5 facility. As such (and with a posted speed limit of 45 miles per hour), traffic signals/unsignalized full median openings should be spaced at no less than 1,320 feet from each other, directional median openings should have a spacing of no less than 660 feet, and driveway connection spacing should provide more than 245 feet between private driveways and/or public streets. Figure 3 shows the spacing between traffic signals (approximately 0.5 miles between signalized intersections).

Typical Section

The cross section of Powerline Road includes six (6) eleven-foot through lanes with a raised median and 2 feet of curb and gutter on each side of the roadway. The width of the median varies throughout the length of the study segment of Powerline Road. In some areas (primarily the souther section) the raised median functions as a traffic separator and further north the raised median is wide enough where landscaping is provided. Additionally, a 2-foot paved shoulder is provided on both sides of Powerline Road from about the I-95 underpass to Commercial Boulevard.



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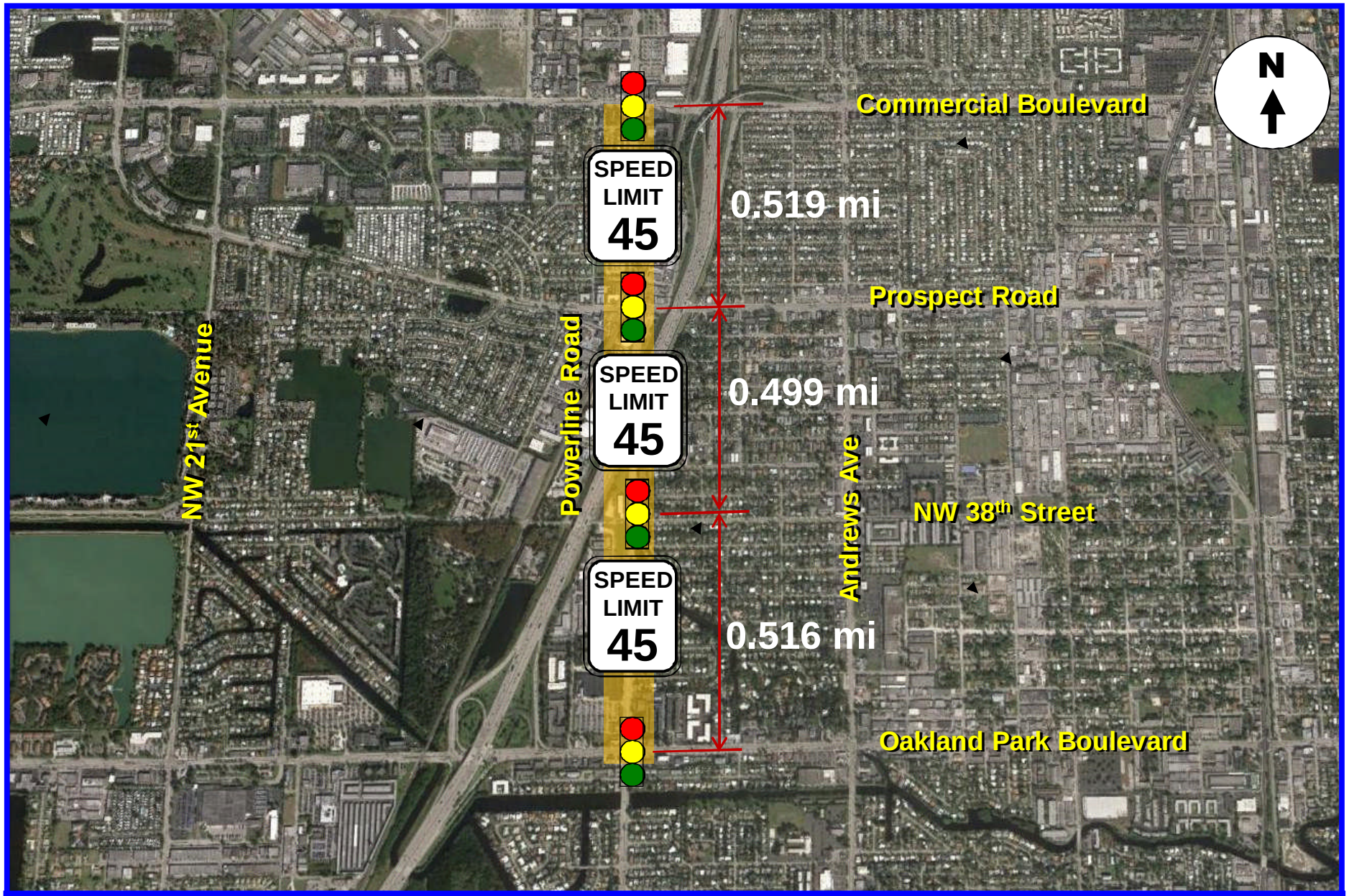
EXISTING LANE GEOMETRY

FIGURE 2
Powerline Road - Lane Elimination
Oakland Park, Florida



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SIGNAL SPACING AND SPEED LIMIT

FIGURE 3
Powerline Road - Lane Elimination
Oakland Park, Florida

Traffic Counts

There are two traffic count stations located along the study segment of Powerline Road; 1) FDOT Traffic Count Site 5189 located north of Oakland Park Boulevard and,2) FDOT Traffic Count Site 484 located near Prospect Road. Based on historical traffic volumes on these two traffic count stations, traffic volumes have remained relatively constant during the past 15 years. Table 1 below presents the historical traffic volumes on Powerline Road between Oakland Park Boulevard and Commercial Boulevard.

TABLE 1
Historical Traffic Counts for Powerline Road
Oakland Park Boulevard to Commercial Boulevard

Year	Traffic Count Station	
	North of Oakland Park Blvd	**Near Prospect Road**
1998	26,500	24,500
1999	28,500	24,500
2000	29,000	25,500
2001	26,500	24,500
2002	26,500	23,000
2003	26,000	22,500
2004	25,500	24,000
2005	27,500	25,000
2006	29,500	24,000
2007	25,500	24,000
2008	25,500	25,500
2009	24,500	20,400
2010	26,000	20,500
2011	25,500	20,300
2012	25,000	21,000
2013	22,200	26,500

SOURCE: Florida Department of Transportation

Appendix A contains the data published by the FDOT for the above-two traffic count stations.

Transit Service

Broward County Transit (BCt) operates Route 14 along Powerline Road. This route travels between the Broward Central Terminal located at Downtown Fort Lauderdale and Hillsboro Boulevard near Broward/Palm Beach County line. During Monday through Friday, BCt Route 14 travels with 20 minute headways. On Saturdays, the headway increases to 45 minutes. No transit service is provided on Sundays along Powerline Road.

There are four (4) bus stops along the study segment of Powerline Road for northbound-traveling buses and four (4) for southbound-traveling buses. Two of the eight bus stops only have a bus-stop sign, five have a bus stop sign and a bus bench, and one bus stop has a shelter. The bus-stop locations and the type of amenities are graphically depicted in Figure 4.

Level of Service

According to Broward County records (refer to Appendix C), Powerline Road is currently operating at less than 40 percent of its level of service "D" capacity between Oakland Park Boulevard and Prospect Road. North of Prospect Road, the traffic volumes increase to approximately 47 percent of the roadways carrying capacity. In short, the six through lanes on Powerline Road provide more than twice the capacity when compared with the traffic volumes traveling north and south along the State Road 845 (refer to Tables 2 and 3).

TABLE 2 – Daily Analysis
Existing Traffic Conditions for Powerline Road (As a 6-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

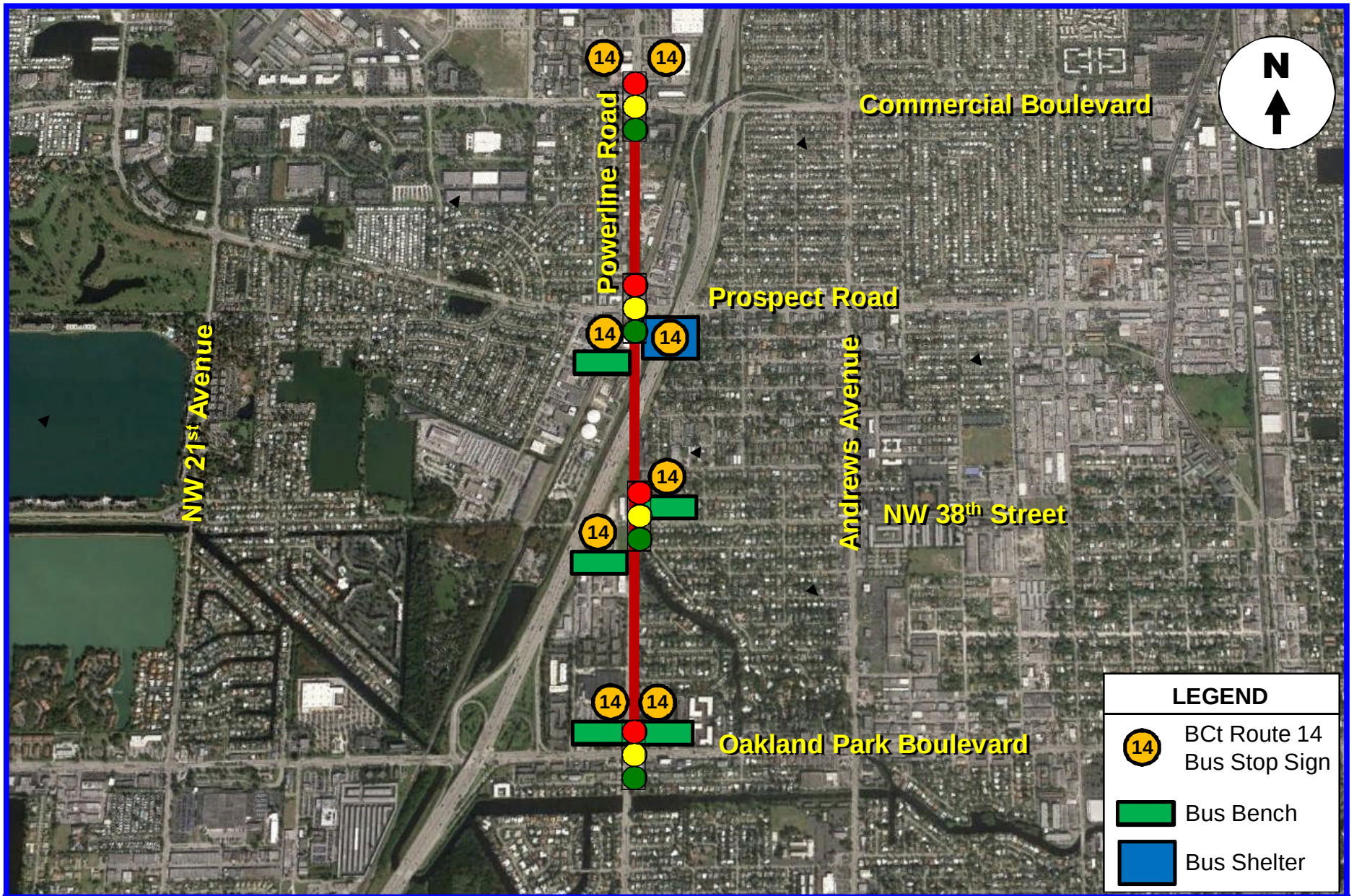
	Year 2013			
Roadway Segment	**Daily Volume**	**Daily Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	22,200	59,900	0.37	C
N. of Prospect Rd	26,500	59,900	0.44	C

Broward County and FDOT

TABLE 3 – Peak Hour Analysis
Existing Traffic Conditions for Powerline Road (As a 6-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

	Year 2013			
Roadway Segment	**Peak Hour Volume**	**Peak Hour Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	2,109	5,390	0.39	C
N. of Prospect Rd	2,518	5,390	0.47	C

Broward County and FDOT



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BROWARD COUNTY TRANSIT STOPS

FIGURE 4
Powerline Road - Lane Elimination
Oakland Park, Florida

FUTURE TRAFFIC PROJECTIONS

As part of Broward County's *2035 Transformation Long Range Transportation Plan*, year 2035 traffic volumes were developed for all trafficways facilities located with the County. The future traffic projections include daily and peak hour volumes. The traffic projections developed for the study segment of Powerline Road are summarized in Tables 4 and 5 below (the published Broward County data is contained in Appendix C).

TABLE 4 – Daily Analysis
Future Traffic Conditions for Powerline Road (As a 6-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

	Year 2035			
Roadway Segment	**Daily Volume**	**Daily Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	31,696	59,900	0.53	C
N. of Prospect Rd	31,869	59,900	0.53	C

Broward County and FDOT

TABLE 5 – Peak Hour Analysis
Future Traffic Conditions for Powerline Road (As a 6-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

	Year 2035			
Roadway Segment	**Peak Hour Volume**	**Peak Hour Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	3,011	5,390	0.56	C
N. of Prospect Rd	3,028	5,390	0.56	C

Broward County and FDOT

As indicated in Tables 4 and 5, excess roadway capacity will be available in the year 2035 on a six-lane Powerline Road. Hence, lane reduction is warranted based on the future traffic volumes published by Broward County.

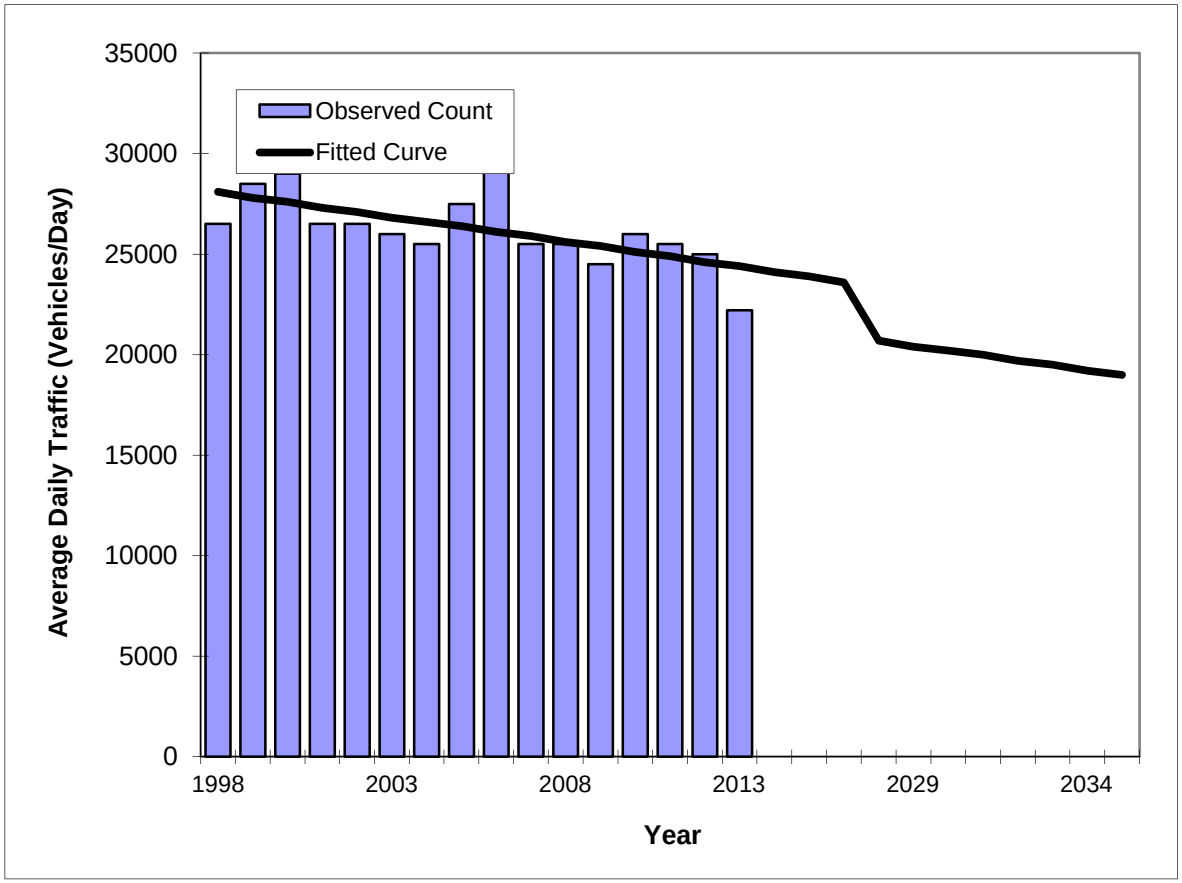
In addition to the above analysis, a traffic trend analysis was undertaken following FDOT's straight line growth methodology. As shown in the two graphs located on the following two pages, traffic volumes are projected to remain relatively constant along Powerline Road, based on historical traffic data during the past 15 years.

Traffic Trends - V2.0

Powerline Road -- North of Oakland Park Blvd

PIN#	0
Location	1

County:	Broward County (86)
Station #:	5189
Highway:	Powerline Road



Year	Traffic (ADT/AADT) Count*	Trend**
1998	26500	28100
1999	28500	27800
2000	29000	27600
2001	26500	27300
2002	26500	27100
2003	26000	26800
2004	25500	26600
2005	27500	26400
2006	29500	26100
2007	25500	25900
2008	25500	25600
2009	24500	25400
2010	26000	25100
2011	25500	24900
2012	25000	24600
2013	22200	24400
2035 Opening Year Trend		
2035	N/A	19000
2015 Mid-Year Trend		
2015	N/A	23900
2016 Design Year Trend		
2016	N/A	23600
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-246
Trend R-squared:	42.68%
Trend Annual Historic Growth Rate:	-0.88%
Trend Growth Rate (2013 to Design Year):	-1.09%
Printed:	23-Feb-15

Straight Line Growth Option

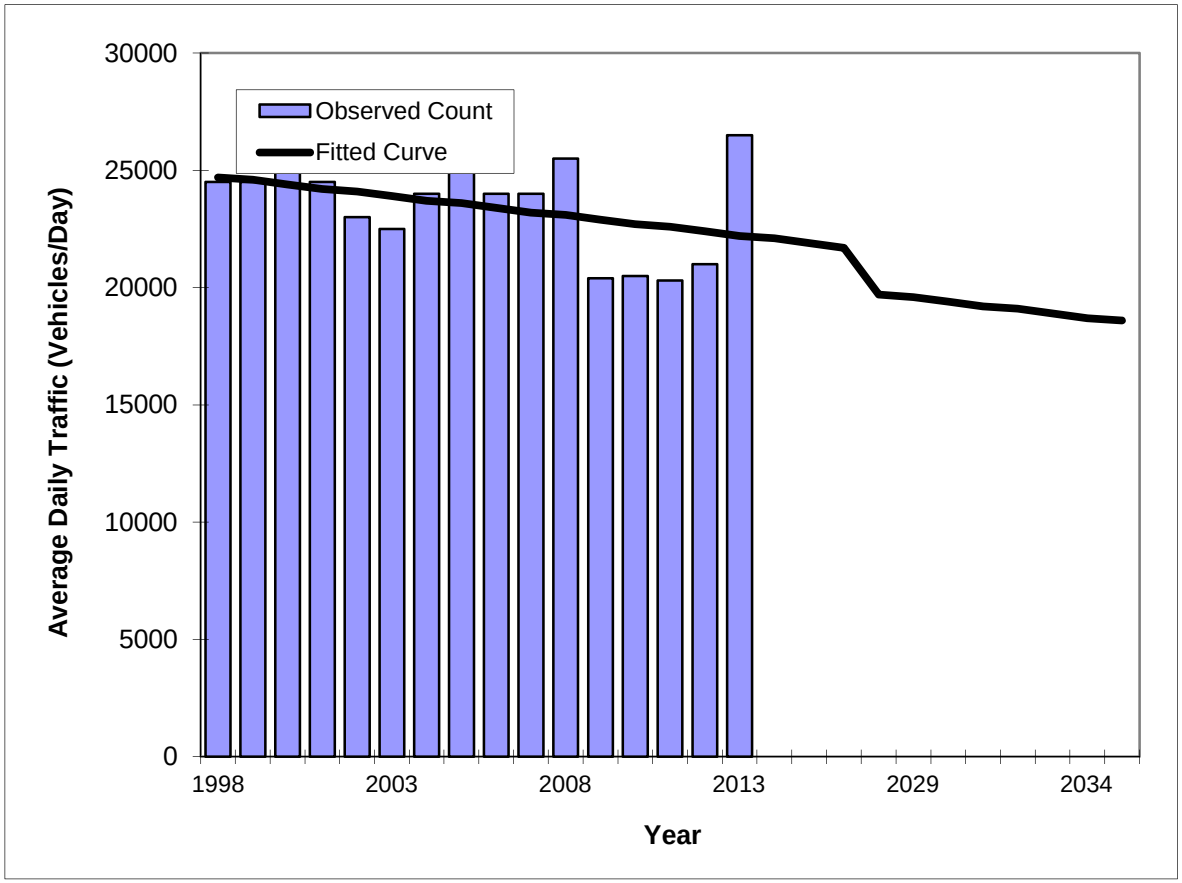
***Axle-Adjusted**

Traffic Trends - V2.0

Powerline Road -- Near Prospect Road

PIN#	0
Location	1

County:	Broward County (86)
Station #:	0484
Highway:	Powerline Road



Year	Traffic (ADT/AADT) Count*	Trend**
1998	24500	24700
1999	24500	24600
2000	25500	24400
2001	24500	24200
2002	23000	24100
2003	22500	23900
2004	24000	23700
2005	25000	23600
2006	24000	23400
2007	24000	23200
2008	25500	23100
2009	20400	22900
2010	20500	22700
2011	20300	22600
2012	21000	22400
2013	26500	22200
2035 Opening Year Trend		
2035	N/A	18600
2015 Mid-Year Trend		
2015	N/A	21900
2016 Design Year Trend		
2016	N/A	21700
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-166
Trend R-squared:	15.79%
Trend Annual Historic Growth Rate:	-0.67%
Trend Growth Rate (2013 to Design Year):	-0.75%
Printed:	23-Feb-15

Straight Line Growth Option

***Axle-Adjusted**

LANE REDUCTION EVALUATION

The lane reduction analysis focuses on the roadway segment and at the four signalized intersections.

Roadway Segment Analysis

For the roadway segment analysis, Tables 6 and 7 below demonstrate that a four-lane Powerline Road can function adequately through Broward County's buildout year of 2035. It is important to note that the subject segment evaluation is based on the more-conservative approach using Broward County's future traffic projections for Powerline Road. (As indicated previously, FDOT's trend analysis tends to indicate that traffic volumes on Powerline Road are not likely to increase as the County's projections indicate.)

TABLE 6 – Daily Analysis
Future Traffic Conditions for Powerline Road (As a 4-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

	Year 2035			
Roadway Segment	**Daily Volume**	**Daily Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	31,696	39,800	0.80	C
N. of Prospect Rd	31,869	39,800	0.80	C

Broward County and FDOT (Refer to Appendix D for Daily and Peak Hour Capacities)

TABLE 7 – Peak Hour Analysis
Future Traffic Conditions for Powerline Road (As a 4-Lane Roadway)
Oakland Park Boulevard to Commercial Boulevard

	Year 2035			
Roadway Segment	**Peak Hour Volume**	**Peak Hour Capacity**	**V/C Ratio**	**LOS**
N. of Oakland Park Blvd	3,011	3,580	0.84	C
N. of Prospect Rd	3,028	3,580	0.85	C

Broward County and FDOT (Refer to Appendix D for Daily and Peak Hour Capacities)

As indicated in Tables 6 and 7, excess roadway capacity will be available in the year 2035 on a four-lane Powerline Road. Hence, lane reduction is warranted based on the future traffic volumes published by Broward County.

Intersection Analysis

Based on current level of congestion at the major signalized intersections of Powerline Road/Commercial Boulevard (north terminus) and Powerline Road/Oakland Park Boulevard (south terminus), three through lanes should by maintained in both the northbound and southbound directions in order to avoid degrading the operation of these deficient intersections. The following transition dimensions from a six-lane roadway to a four-lane cross section should be considered:

- Northbound Powerline Road approaching Commercial Boulevard: Widen to the existing five-lane approach at least 500 feet south of Commercial Boulevard

- Southbound Powerline Road departing from Commercial Boulevard: Continue the 3 southbound through lanes for at least 1,000 feet prior to reducing the number of southbound through lanes to two (2)

- Southbound Powerline Road approaching Oakland Park Boulevard: Widen to the existing four-lane approach at least 500 feet north of Oakland Park Boulevard

- Northbound Powerline Road departing from Oakland Park Boulevard: Continue the 3 northbound through lanes for at least 1,000 feet prior to reducing the number of northbound through lanes to two (2)

The signalized intersections of Powerline Road/Prospect Road and Powerline Road/NW 38th Street can process four through lanes (two in each direction) without degrading the level of service through the year 2035. This conclusion was reached by undertaking the following analyses:

1. Used traffic counts conducted by others both interactions (refer to Appendix E).

2. Adjusted the traffic counts to peak season conditions using FDOT's Peak Season Factor Category Report (refer to Appendix F).

3. Developed future year 2035 turning movement volumes for both study intersections using the more-conservative future growth published by Broward County for the study segment of Powerline Road (approximately 25% increase in traffic volumes). The future year 2035 turning movement volumes are presented in tabular format in Appendix G.

4. Conducted intersection analyses for both the AM and PM peak periods using the SYNCHRO software. As documented in the SYNCHRO runs contained in Appendix H, the intersections of Powerline Road/Prospect Road and Powerline Road/NW 38th Street are projected to operate at level of service "D" and "C", respectively, with two through lanes in each direction.

CONCLUSIONS AND RECOMMENDATIONS

The City of Oakland Park is seeking to reduce the number of through lanes on Powerline Road, between Commercial Boulevard on the north and Oakland Park Boulevard on the south from six (6) lanes to four (4) lanes.

As a sub-consultant to Craven Thompson & Associates, Inc., Traf Tech Engineering, Inc. was retained by the City of Oakland Park to conduct the necessary traffic evaluation in order to determine the feasibility of the subject lane-reduction project.

Based on the lane-reduction evaluation presented herein, the number of through lanes on Powerline Road, from Commercial Boulevard to Oakland Park Boulevard, can be reduced from six (6) to four (4). However, at the north and south termini of the study segment of Powerline Road, the following transition dimensions from a six-lane roadway to a four-lane cross section should be considered:

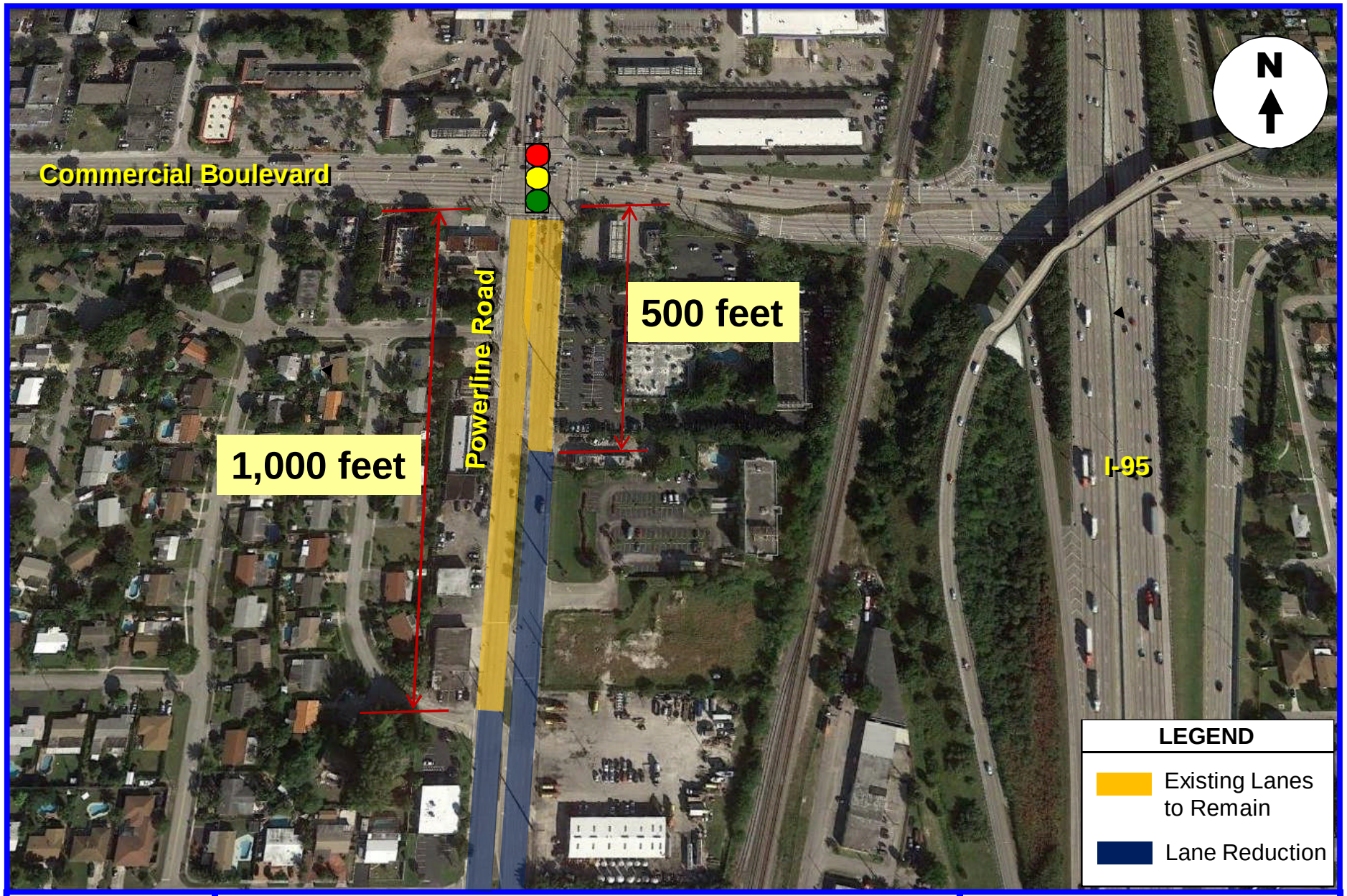
- Northbound Powerline Road approaching Commercial Boulevard: Widen to the existing five-lane approach at least 500 feet south of Commercial Boulevard

- Southbound Powerline Road departing from Commercial Boulevard: Continue the 3 southbound through lanes for at least 1,000 feet prior to reducing the number of southbound through lanes to two (2)

- Southbound Powerline Road approaching Oakland Park Boulevard: Widen to the existing four-lane approach at least 500 feet north of Oakland Park Boulevard

- Northbound Powerline Road departing from Oakland Park Boulevard: Continue the 3 northbound through lanes for at least 1,000 feet prior to reducing the number of northbound through lanes to two (2)

Figures 5 and 6 illustrate the lane transition at Commercial Boulevard and Oakland Park Boulevard, respectively. Exhibit 1 shows a detailed plan of the transition at the north terminus (Commercial Boulevard). Figures 7 and 8 depict the lane reduction concept through the intersections of NW 38th Street and Powerline Road, respectively.



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LANE TRANSITION AT COMMERCIAL BOULEVARD

FIGURE 5
Powerline Road - Lane Elimination
Oakland Park, Florida

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LANE TRANSITION AT OAKLAND PARK BOULEVARD

FIGURE 6
Powerline Road - Lane Elimination
Oakland Park, Florida

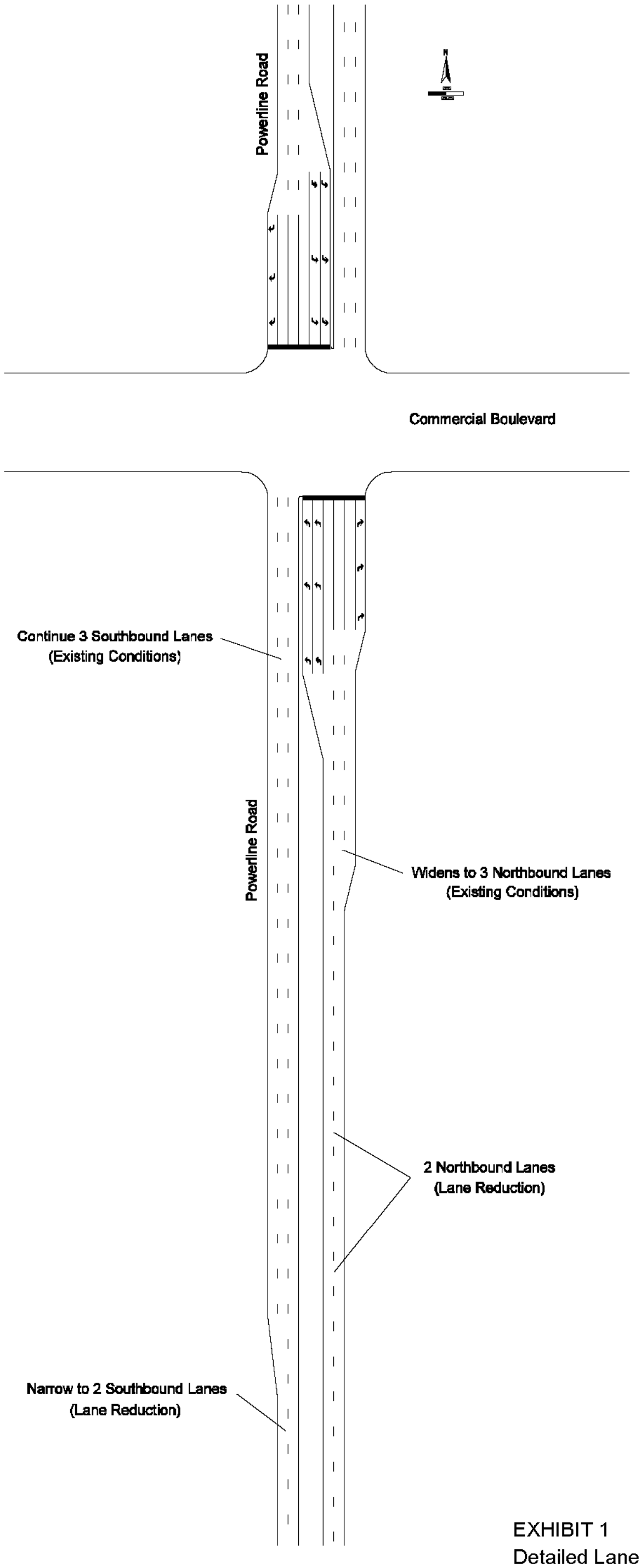
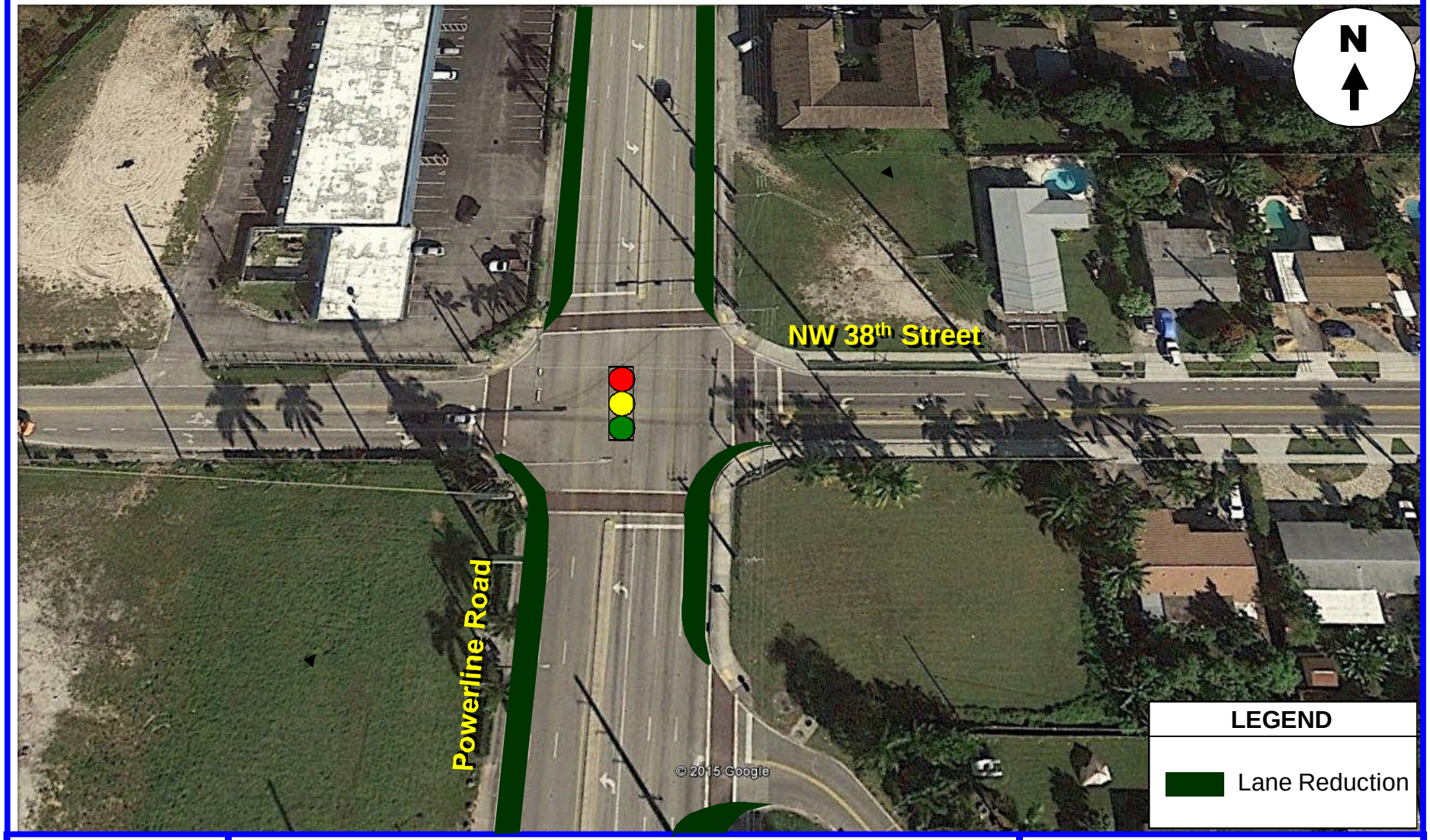


EXHIBIT 1
Detailed Lane Transition
at Commercial Boulevard



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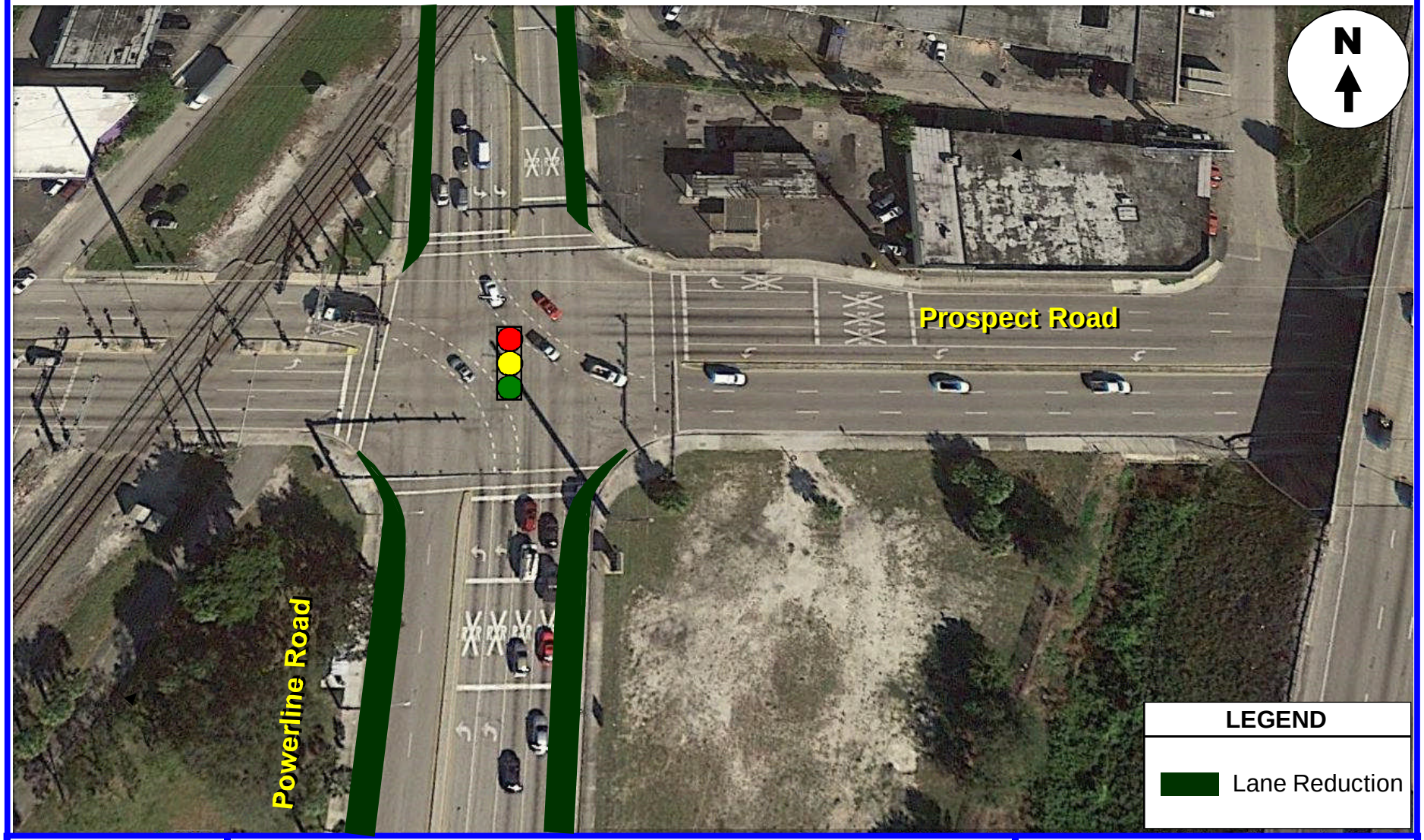
Lane Reduction at NW 38th Street

FIGURE 7
Powerline Road - Lane Elimination
Oakland Park, Florida



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Lane Reduction at Prospect Road

FIGURE 8
Powerline Road - Lane Elimination
Oakland Park, Florida

APPENDIX A

Historical Traffic Counts

(Source: FDOT)

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2013 HISTORICAL AADT REPORT

COUNTY: 86 - BROWARD

SITE: 5189 - SR 845/POWERLINE RD - N OF OAKLAND PARK BLVD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2013	22200 C	N 9700	S 12500	9.00	53.60	15.30
2012	25000 C	N 12000	S 13000	9.00	52.20	5.90
2011	25500 C	N 12500	S 13000	9.00	52.50	5.90
2010	26000 C	N 12500	S 13500	8.35	52.69	6.00
2009	24500 C	N 11500	S 13000	8.53	53.89	4.10
2008	25500 C	N 12000	S 13500	8.81	54.16	4.10
2007	25500 C	N 12500	S 13000	8.63	55.75	5.00
2006	29500 C	N 13500	S 16000	8.40	55.34	4.40
2005	27500 C	N 13500	S 14000	8.20	51.70	4.40
2004	25500 C	N 13000	S 12500	9.10	55.30	4.40
2003	26000 C	N 12500	S 13500	8.60	57.50	4.10
2002	26500 C	N 13000	S 13500	8.70	56.40	4.10
2001	26500 C	N 13000	S 13500	9.00	60.20	5.90
2000	29000 C	N 14000	S 15000	8.90	57.80	5.40
1999	28500 C	N 14000	S 14500	9.60	62.50	5.30
1998	26500 C	N 13000	S 13500	8.70	56.10	4.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; F = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2013 HISTORICAL AADT REPORT

COUNTY: 86 - BROWARD

SITE: 0484 - SR 845/POWERLINE RD - S OF PROSPECT RD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2013	26500 C	N 16000	S 10500	9.00	53.60	6.30
2012	21000 C	N 10500	S 10500	9.00	52.20	5.80
2011	20300 C	N 9800	S 10500	9.00	52.50	4.80
2010	20500 C	N 10500	S 10000	8.35	52.69	5.70
2009	20400 C	N 9900	S 10500	8.53	53.89	5.60
2008	25500 C	N 12500	S 13000	8.81	54.16	3.10
2007	24000 C	N 11500	S 12500	8.63	55.75	3.10
2006	24000 C	N 11500	S 12500	8.40	55.34	3.10
2005	25000 C	N 12500	S 12500	8.20	51.70	5.00
2004	24000 C	N 12000	S 12000	9.10	55.30	5.00
2003	22500 C	N 11500	S 11000	8.60	57.50	3.70
2002	23000 C	N 11500	S 11500	8.70	56.40	4.00
2001	24500 C	N 12500	S 12000	9.00	60.20	5.40
2000	25500 C	N 13000	S 12500	8.90	57.80	5.00
1999	24500 C	N 12000	S 12500	9.60	62.50	3.90
1998	24500 C	N 12500	S 12000	8.70	56.10	5.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; F = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

APPENDIX B

Broward County Transit Route 14

(Source: Broward County)

Route 14

Effective Date: 1.19.14
Route: 14

Weekday Northbound: Broward Central Terminal to Hillsboro Boulevard via Powerline Road.
Weekday Southbound: Hillsboro Bouldevard to Broward Central Terminal via Powerline Road.

Saturday Northbound: Broward Central Terminal to Hillsboro Boulevard via Powerline Road.
Saturday Southbound: Hillsboro Bouldevard to Broward Central Terminal via Powerline Road.

Sunday Northbound: Broward Central Terminal to Hillsboro Boulevard via Powerline Road.
Sunday Southbound: Hillsboro Bouldevard to Broward Central Terminal via Powerline Road.

Weekday Northbound

Broward Central Terminal	5:00a	5:20a	5:40a	6:00a	6:20a	6:40a	7:00a	7:20a	7:40a	8:00a	8:20a	8:40a	9:00a	9:20a	9:40a	10:00a	10:20a	10:40a	11:00a	11:20a	11:40a	12:00p	12:2
Oakland Park Blv & Powerline Rd	5:16a	5:36a	5:56a	6:17a	6:37a	6:57a	7:18a	7:38a	7:58a	8:18a	8:38a	8:58a	9:17a	9:37a	9:57a	10:17a	10:37a	10:57a	11:17a	11:37a	11:57a	12:17p	12:3
TCRA Cypress Creek Tri-Rail	5:25a	5:45a	6:06a	6:27a	6:47a	7:08a	7:29a	7:49a	8:09a	8:29a	8:49a	9:08a	9:27a	9:47a	10:07a	10:27a	10:47a	11:07a	11:27a	11:47a	12:07p	12:27p	12:4
Copans Rd & Powerline Rd	5:41a	6:01a	6:23a	6:44a	7:04a	7:26a	7:47a	8:07a	8:27a	8:47a	9:07a	9:25a	9:44a	10:04a	10:24a	10:44a	11:04a	11:24a	11:44a	12:04p	12:24p	12:44p	1:0
Hillsboro Blv & Powerline Rd	5:56a	6:17a	6:39a	7:00a	7:21a	7:43a	8:04a	8:24a	8:44a	9:04a	9:23a	9:41a	10:00a	10:20a	10:40a	11:00a	11:20a	11:40a	12:00p	12:20p	12:40p	1:00p	1:2

Weekday Southbound **Note: Southbound buses do not pull into Cypress Tri-Rail Station*

Hillsboro Blv & Powerline Rd		5:12a	5:32a	5:52a	6:12a	6:32a	6:52a	7:12a	7:32a	7:52a	8:12a	8:32a	8:52a	9:12a	9:32a	9:52a	10:12a	10:32a	10:52a	11:12a	11:32a	11:52a	12:1
Copans Rd & Powerline Rd	5:04a	5:24a	5:44a	6:04a	6:25a	6:45a	7:05a	7:26a	7:46a	8:06a	8:26a	8:46a	9:06a	9:25a	9:45a	10:05a	10:25a	10:45a	11:05a	11:25a	11:45a	12:05p	12:2
TCRA Cypress Creek Tri-Rail*	5:19a	5:39a	5:59a	6:20a	6:41a	7:01a	7:22a	7:43a	8:03a	8:23a	8:43a	9:03a	9:22a	9:41a	10:01a	10:21a	10:41a	11:01a	11:21a	11:41a	12:01p	12:21p	12:4
Oakland Park Blv & Powerline Rd	5:29a	5:49a	6:10a	6:31a	6:52a	7:13a	7:34a	7:55a	8:15a	8:35a	8:55a	9:14a	9:33a	9:52a	10:12a	10:32a	10:52a	11:12a	11:32a	11:52a	12:12p	12:32p	12:5
Broward Central Terminal	5:43a	6:03a	6:25a	6:46a	7:07a	7:29a	7:50a	8:11a	8:31a	8:51a	9:10a	9:29a	9:48a	10:07a	10:27a	10:47a	11:07a	11:27a	11:47a	12:07p	12:27p	12:47p	1:07

Saturday Northbound

Broward Central Terminal	5:45a	6:30a	7:15a	8:00a	8:45a	9:30a	10:15a	11:00a	11:45a	12:30p	1:15p	2:00p	2:45p	3:30p	4:15p	5:00p	5:45p	6:30p	7:15p	8:00p	8:45p	9:30p	10:15
Oakland Park Blv & Powerline Rd	5:59a	6:44a	7:30a	8:15a	9:00a	9:46a	10:31a	11:16a	12:01p	12:46p	1:31p	2:16p	3:01p	3:46p	4:31p	5:16p	6:01p	6:46p	7:30p	8:15p	9:00p	9:44p	10:29
TCRA Cypress Creek Tri-Rail	6:07a	6:52a	7:39a	8:24a	9:10a	9:56a	10:41a	11:26a	12:11p	12:56p	1:41p	2:26p	3:11p	3:56p	4:41p	5:26p	6:11p	6:56p	7:39p	8:24p	9:08p	9:52p	10:37
Copans Rd & Powerline Rd	6:21a	7:06a	7:54a	8:39a	9:26a	10:12a	10:57a	11:42a	12:27p	1:12p	1:57p	2:42p	3:27p	4:12p	4:57p	5:42p	6:27p	7:11p	7:54p	8:39p	9:22p	10:06p	10:51
Hillsboro Blv & Powerline Rd	6:35a	7:21a	8:09a	8:54a	9:42a	10:28a	11:13a	11:58a	12:43p	1:28p	2:13p	2:58p	3:43p	4:28p	5:13p	5:58p	6:43p	7:26p	8:09p	8:54p	9:36p	10:20pG	11:05

Saturday Southbound **Note: Southbound buses do not pull into Cypress Tri-Rail Station*

Hillsboro Blv & Powerline Rd		6:10a	6:55a	7:40a	8:25a	9:10a	9:55a	10:40a	11:25a	12:10p	12:55p	1:40p	2:25p	3:10p	3:55p	4:40p	5:25p	6:10p	6:55p	7:40p	8:25p	9:10p	9:55p
Copans Rd & Powerline Rd	5:36a	6:21a	7:07a	7:52a	8:37a	9:23a	10:08a	10:53a	11:38a	12:23p	1:08p	1:53p	2:38p	3:23p	4:08p	4:53p	5:38p	6:23p	7:07p	7:52p	8:37p	9:21p	10:06p
TCRA Cypress Creek Tri-Rail*	5:49a	6:34a	7:21a	8:06a	8:51a	9:38a	10:23a	11:08a	11:53a	12:38p	1:23p	2:08p	2:53p	3:38p	4:23p	5:08p	5:53p	6:38p	7:21p	8:06p	8:51p	9:34p	10:19p
Oakland Park Blv & Powerline Rd	5:57a	6:42a	7:30a	8:15a	9:00a	9:48a	10:33a	11:18a	12:03p	12:48p	1:33p	2:18p	3:03p	3:48p	4:33p	5:18p	6:03p	6:48p	7:30p	8:15p	9:00p	9:42p	10:27p
Broward Central Terminal	6:10a	6:55a	7:44a	8:29a	9:15a	10:03a	10:48a	11:33a	12:18p	1:03p	1:48p	2:33p	3:18p	4:03p	4:48p	5:33p	6:18p	7:03p	7:44p	8:29p	9:13p	9:55p	10:40p

Sunday Northbound

Broward Central Terminal	8:00a	8:45a	9:30a	10:15a	11:00a	11:45a	12:30p	1:15p	2:00p	2:45p	3:30p	4:15p	5:00p	5:45p	6:30p	7:15p
Oakland Park Blv & Powerline Rd	8:15a	9:00a	9:45a	10:31a	11:16a	12:01p	12:46p	1:31p	2:16p	3:01p	3:46p	4:31p	5:16p	6:01p	6:45p	7:30p
TCRA Cypress Creek Tri-Rail	8:24a	9:09a	9:54a	10:41a	11:26a	12:11p	12:56p	1:41p	2:26p	3:11p	3:56p	4:41p	5:26p	6:10p	6:54p	7:39p
Copans Rd & Powerline Rd	8:39a	9:24a	10:10a	10:57a	11:42a	12:27p	1:12p	1:57p	2:42p	3:27p	4:12p	4:57p	5:42p	6:25p	7:09p	7:54p
Hillsboro Blv & Powerline Rd	8:54a	9:39a	10:26a	11:13a	11:58a	12:43p	1:28p	2:13p	2:58p	3:43p	4:28p	5:13p	5:58p	6:40p	7:24pG	8:09pG

Sunday Southbound **Note: Southbound buses do not pull into Cypress Tri-Rail Station*

Hillsboro Blv & Powerline Rd	7:40a	8:25a	9:10a	9:55a	10:40a	11:25a	12:10p	12:55p	1:40p	2:25p	3:10p	3:55p	4:40p	5:25p	6:10p	6:55p
Copans Rd & Powerline Rd	7:52a	8:37a	9:22a	10:08a	10:53a	11:38a	12:23p	1:08p	1:53p	2:38p	3:23p	4:08p	4:53p	5:38p	6:22p	7:07p
TCRA Cypress Creek Tri-Rail*	8:06a	8:51a	9:36a	10:23a	11:08a	11:53a	12:38p	1:23p	2:08p	2:53p	3:38p	4:23p	5:08p	5:53p	6:36p	7:21p
Oakland Park Blv & Powerline Rd	8:15a	9:00a	9:45a	10:33a	11:18a	12:03p	12:48p	1:33p	2:18p	3:03p	3:48p	4:33p	5:18p	6:03p	6:45p	7:30p
Broward Central Terminal	8:29a	9:14a	9:59a	10:48a	11:33a	12:18p	1:03p	1:48p	2:33p	3:18p	4:03p	4:48p	5:33p	6:17p	6:59p	7:44pG

ADA Bus Stops

Current as of November 2008
WB=Westbound **EB**=Eastbound **NB**=Northbound **SB**=Southbound **A**=Accessible **I**=Inaccessible

Stop I.D.	Main Street	Cross Street	Direction
1089	NW 7 AVE	SISTRUNK BLVD	NB
1090	NW 7 AVE	NW 8 ST	NB
1092	POWERLINE RD	NW 13 ST	NB
1095	POWERLINE RD	NW 17 ST	NB
1096	POWERLINE RD	NW 19 ST	NB
1097	POWERLINE RD	NW 23 ST	NB
1098	POWERLINE RD	NW 28 ST	NB
1099	POWERLINE RD	NW 29 ST	NB
1100	POWERLINE RD	OAKLAND PARK BLVD	NB
1101	POWERLINE RD	NW 34 ST	NB
1102	POWERLINE RD	NW 38 ST	NB
1103	POWERLINE RD	COMMERCIAL BLVD	NB
1104	POWERLINE RD	NW 51 PL	NB
1105	POWERLINE RD	STOCKADE	NB
1106	POWERLINE RD	NW 56 ST	NB
1107	POWERLINE RD	NW 57 CT	NB
1108	POWERLINE RD	NW 62 ST	NB
1109	POWERLINE RD	MCNAB RD	NB
1110	POWERLINE RD	GATEWAY DR	NB
1111	POWERLINE RD	CYPRESS BEND D	NB
1112	POWERLINE RD	POMPANO PARK 1	NB
1113	POWERLINE RD	PALM AIRE DR	NB
1114	POWERLINE RD	POMPANO PARK	NB
1119	POWERLINE RD	NW 10 CT	SB
1120	POWERLINE RD	NW 8 ST	SB

1170	POWERLINE RD	ATLANTIC BLVD	SB
1171	POWERLINE RD	N COURSE DR	SB
1172	POWERLINE RD	PALM AIRE DR	SB
1173	POWERLINE RD	S COURSE DR	SB
1174	POWERLINE RD	POMPANO PARK 1	SB
1175	POWERLINE RD	PALM AIRE DR	SB
1176	POWERLINE RD	GATEWAY DR	SB
1177	POWERLINE RD	MCNAB RD	SB
1178	POWERLINE RD	NW 63 CT	SB
1179	POWERLINE RD	NW 62 ST	SB
1180	POWERLINE RD	NW 58 CT	SB
1182	POWERLINE RD	NW 56 ST	SB
1183	POWERLINE RD	NW 53 CT	SB
1187	POWERLINE RD	NW 38 ST	SB
1188	POWERLINE RD	NW 35 CT	SB
1189	POWERLINE RD	NW 34 ST	SB
1190	POWERLINE RD	OAKLAND PARK BLVD	SB
1191	POWERLINE RD	OAKLAND PARK BLVD	SB
1192	POWERLINE RD	NW 29 ST	SB
1193	POWERLINE RD	NW 26 ST	SB
1194	POWERLINE RD	NW 20 ST	SB
1195	POWERLINE RD	NW 19 ST	SB
1196	POWERLINE RD	NW 18 ST	SB
1199	POWERLINE RD	CHATEAU PARK DR	SB
1488	POWERLINE RD	NW 40 ST	SB
2418	NW 7 AVE	NW 9 ST	SB
2689	POWERLINE RD	NW 40 ST	NB
2964	POWERLINE RD	HILLSBORO BLVD	SB
2965	POWERLINE RD	SW 2 CT	SB
2966	POWERLINE RD	SW 4 ST	SB
2967	POWERLINE RD	WEST DR	SB
2968	POWERLINE RD	SW 10 ST	SB
2969	POWERLINE RD	SW 15 ST	SB
2970	POWERLINE RD	NW 44 ST	SB
2976	POWERLINE RD	SAMPLE RD	NB
2977	POWERLINE RD	NW 44 ST	NB
2978	POWERLINE RD	GREEN RD	NB
2979	POWERLINE RD	SW 10 ST	NB
2980	POWERLINE RD	WEST DR	NB
2981	POWERLINE RD	SW 4 ST	NB
3026	POWERLINE RD	MCNAB RD	NB
3053	POWERLINE RD	NW 65 ST	NB
3102	POWERLINE RD	NW 49 ST	SB
3103	POWERLINE RD	NW 47 CT	SB
3104	POWERLINE RD	NW 16 ST	SB
3105	POWERLINE RD	NW 14 CT	SB
3106	POWERLINE RD	NW 13 ST	SB
3107	POWERLINE RD	PROSPECT RD	NB
3108	POWERLINE RD	NW 46 ST	NB
3109	POWERLINE RD	NW 49 ST	NB
3110	POWERLINE RD	NW 14 CT	NB
3111	POWERLINE RD	NW 16 ST	NB
3249	SUNRISE BLVD	NW 7 TERR	WB

APPENDIX C

Existing and Year 2035 Traffic Projections

(Source: Broward County)

APPENDIX C: North / South Roadways Capacity and Level of Service Analysis 2013 & 2035

			2013					2013				2035					2035			
			Design	Daily Conditions				Peak Hour Conditions				Design	Daily Conditions				Peak Hour Conditions			
ID	N/S Roadway	Segment	Code	AADT	Capacity	V/C	LOS	Volume	Capacity	V/C	LOS	Code	Volume	Capacity	V/C	LOS	Volume	Capacity	V/C	LOS
661	Powerline Rd	N of Oakland Pk Blvd	622	22200	59900	0.37	C	2109	5390	0.39	C	622	31696	59900	0.53	C	3011	5390	0.56	C
663	Powerline Rd	N of Prospect Rd	622	26500	59900	0.44	C	2518	5390	0.47	C	622	31869	59900	0.53	C	3028	5390	0.56	C
665	Powerline Rd	N of Commercial Blvd	622	33000	59900	0.55	C	3135	5390	0.58	C	622	37037	59900	0.62	C	3519	5390	0.65	C

APPENDIX D

FDOT Capacity/LOS Tables

(Source: FDOT)

TABLE 1

Generalized **Annual Average Daily** Volumes for Florida's **Urbanized Areas**

12/18/12

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	16,800	17,700	**
4	Divided	*	37,900	39,800	**
6	Divided	*	58,400	59,900	**
8	Divided	*	78,800	80,100	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	7,300	14,800	15,600
4	Divided	*	14,500	32,400	33,800
6	Divided	*	23,300	50,000	50,900
8	Divided	*	32,000	67,300	68,100

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	2,900	7,600	19,700
50-84%	2,100	6,700	19,700	>19,700
85-100%	9,300	19,700	>19,700	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	2,800	9,500
50-84%	*	1,600	8,700	15,800
85-100%	3,800	10,700	17,400	>19,700

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
4	47,400	64,000	77,900	84,600
6	69,900	95,200	116,600	130,600
8	92,500	126,400	154,300	176,600
10	115,100	159,700	194,500	222,700
12	162,400	216,700	256,600	268,900

Urbanized

Lanes	B	C	D	E
4	45,800	61,500	74,400	79,900
6	68,100	93,000	111,800	123,300
8	91,500	123,500	148,700	166,800
10	114,800	156,000	187,100	210,300

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 20,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	8,600	17,000	24,200	33,300
4	Divided	36,700	51,800	65,600	72,600
6	Divided	55,000	77,700	98,300	108,800

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

TABLE 4

Generalized **Peak Hour Two-Way** Volumes for Florida's **Urbanized Areas**[1]

12/18/12

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	1,510	1,600	**
4	Divided	*	3,420	3,580	**
6	Divided	*	5,250	5,390	**
8	Divided	*	7,090	7,210	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	660	1,330	1,410
4	Divided	*	1,310	2,920	3,040
6	Divided	*	2,090	4,500	4,590
8	Divided	*	2,880	6,060	6,130

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	260	680	1,770
50-84%	190	600	1,770	>1,770
85-100%	830	1,770	>1,770	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	250	850
50-84%	*	150	780	1,420
85-100%	340	960	1,560	>1,770

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
4	4,120	5,540	6,700	7,190
6	6,130	8,370	10,060	11,100
8	8,230	11,100	13,390	15,010
10	10,330	14,040	16,840	18,930
12	14,450	18,880	22,030	22,860

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 1,800	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	770	1,530	2,170	2,990
4	Divided	3,300	4,660	5,900	6,530
6	Divided	4,950	6,990	8,840	9,790

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1] Values shown are presented as peak hour two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

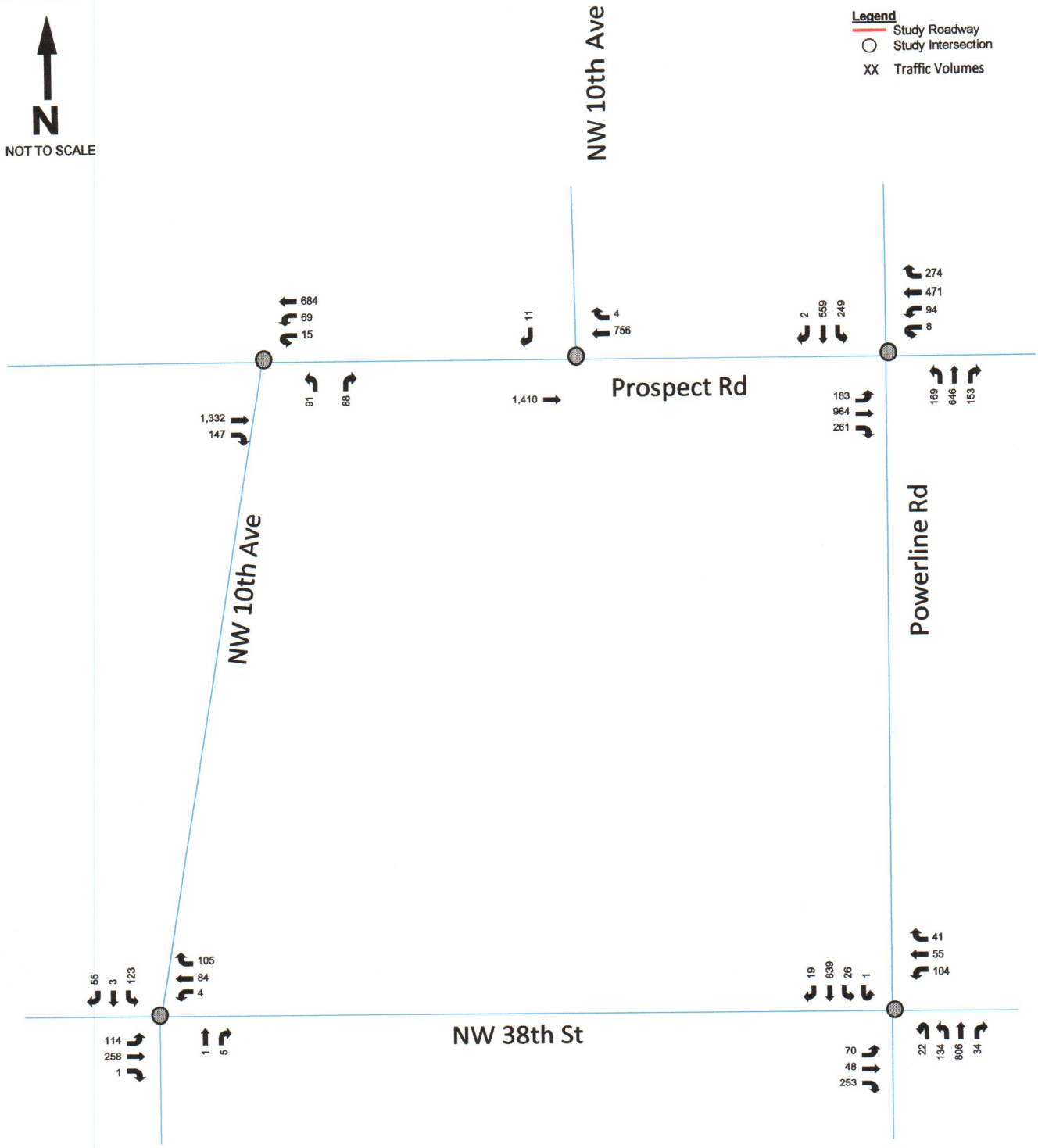
* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

APPENDIX E

Turning Movement Counts at Powerline/Prospect & Powerline/NW 38th Street



Kimley-Horn and Associates, Inc.

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Figure 6
Future Non-Project AM Peak Hour Traffic Volumes
Oakland Park, Florida

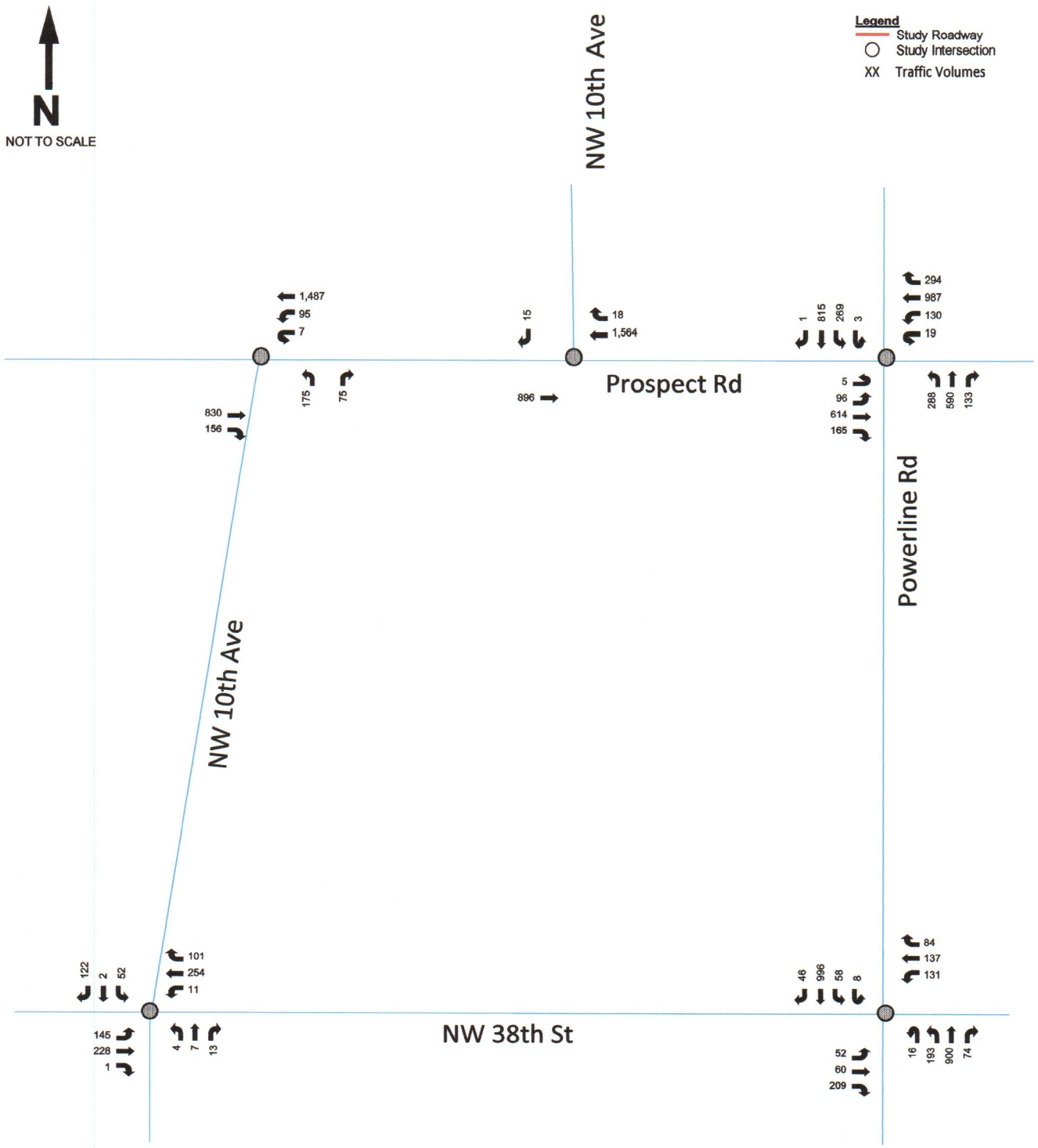

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Figure 7
Future Non-Project PM Peak Hour Traffic Volumes
Oakland Park, Florida

APPENDIX F

Peak Season Factor Category Report

(Source: FDOT)

2008 Peak Season Factor Category Report - Report Type: ALL
Category: 8601 CEN.-W OF US1 TO SR7

MOCF: 0.95

Week	Dates	SF	PSCF
1	01/01/2008 - 01/05/2008	1.02	1.08
2	01/06/2008 - 01/12/2008	1.00	1.06
3	01/13/2008 - 01/19/2008	0.98	1.04
* 4	01/20/2008 - 01/26/2008	0.96	1.01
* 5	01/27/2008 - 02/02/2008	0.95	1.00
* 6	02/03/2008 - 02/09/2008	0.94	0.99
* 7	02/10/2008 - 02/16/2008	0.93	0.98
* 8	02/17/2008 - 02/23/2008	0.93	0.98
* 9	02/24/2008 - 03/01/2008	0.94	0.99
*10	03/02/2008 - 03/08/2008	0.94	0.99
*11	03/09/2008 - 03/15/2008	0.94	0.99
*12	03/16/2008 - 03/22/2008	0.95	1.00
*13	03/23/2008 - 03/29/2008	0.95	1.00
*14	03/30/2008 - 04/05/2008	0.95	1.00
*15	04/06/2008 - 04/12/2008	0.96	1.01
*16	04/13/2008 - 04/19/2008	0.96	1.01
17	04/20/2008 - 04/26/2008	0.97	1.03
18	04/27/2008 - 05/03/2008	0.98	1.04
19	05/04/2008 - 05/10/2008	0.99	1.05
20	05/11/2008 - 05/17/2008	0.99	1.05
21	05/18/2008 - 05/24/2008	1.00	1.06
22	05/25/2008 - 05/31/2008	1.01	1.07
23	06/01/2008 - 06/07/2008	1.01	1.07
24	06/08/2008 - 06/14/2008	1.02	1.08
25	06/15/2008 - 06/21/2008	1.02	1.08
26	06/22/2008 - 06/28/2008	1.03	1.09
27	06/29/2008 - 07/05/2008	1.04	1.10
28	07/06/2008 - 07/12/2008	1.05	1.11
29	07/13/2008 - 07/19/2008	1.05	1.11
30	07/20/2008 - 07/26/2008	1.05	1.11
31	07/27/2008 - 08/02/2008	1.04	1.10
32	08/03/2008 - 08/09/2008	1.03	1.09
33	08/10/2008 - 08/16/2008	1.02	1.08
34	08/17/2008 - 08/23/2008	1.03	1.09
35	08/24/2008 - 08/30/2008	1.04	1.10
36	08/31/2008 - 09/06/2008	1.05	1.11
37	09/07/2008 - 09/13/2008	1.05	1.11
38	09/14/2008 - 09/20/2008	1.06	1.12
39	09/21/2008 - 09/27/2008	1.05	1.11
40	09/28/2008 - 10/04/2008	1.05	1.11
41	10/05/2008 - 10/11/2008	1.04	1.10
42	10/12/2008 - 10/18/2008	1.03	1.09
43	10/19/2008 - 10/25/2008	1.03	1.09
44	10/26/2008 - 11/01/2008	1.02	1.08
45	11/02/2008 - 11/08/2008	1.02	1.08
46	11/09/2008 - 11/15/2008	1.02	1.08
47	11/16/2008 - 11/22/2008	1.02	1.08
48	11/23/2008 - 11/29/2008	1.02	1.08
49	11/30/2008 - 12/06/2008	1.02	1.08
50	12/07/2008 - 12/13/2008	1.02	1.08
51	12/14/2008 - 12/20/2008	1.02	1.08
52	12/21/2008 - 12/27/2008	1.00	1.06
53	12/28/2008 - 12/31/2008	0.98	1.04

* Peak Season

APPENDIX G

Future (Year 2035) Intersection Turning Movement Volumes

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Powerline Road and Prospect Road
AM Peak Hour

Description	Powerline Road Northbound			Powerline Road Southbound			Prospect Road Eastbound			Prospect Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/10/2008)	169	646	153	249	561		163	964	261	102	471	274
Season Adjustment Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Future Adjustment Factor	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
2035 Peak Season Traffic	228	698	165	269	606	0	176	1041	282	110	509	296
2035 Total Traffic	**228**	**698**	**165**	**269**	**606**	**0**	**176**	**1,041**	**282**	**110**	**509**	**296**

Powerline Road and Prospect Road
PM Peak Hour

Description	Powerline Road Northbound			Powerline Road Southbound			Prospect Road Eastbound			Prospect Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/10/2008)	288	590	133	272	816		101	614	165	149	987	294
Season Adjustment Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Future Adjustment Factor	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
2035 Peak Season Traffic	389	637	144	294	881	0	109	663	178	161	1066	318
2035 Total Traffic	**389**	**637**	**144**	**294**	**881**	**0**	**109**	**663**	**178**	**161**	**1,066**	**318**

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FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Powerline Road and NW 38th Street
AM Peak Hour

Description	Powerline Road Northbound			Powerline Road Southbound			NW 38th Street Eastbound			NW 38th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/10/2008)	156	806	34	27	839	19	70	48	253	104	55	41
Season Adjustment Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Future Adjustment Factor	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
2035 Peak Season Traffic	211	870	37	29	906	21	76	52	273	112	59	44
2035 Total Traffic	**211**	**870**	**37**	**29**	**906**	**21**	**76**	**52**	**273**	**112**	**59**	**44**

Powerline Road and NW 38th Street
PM Peak Hour

Description	Powerline Road Northbound			Powerline Road Southbound			NW 38th Street Eastbound			NW 38th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/10/2008)	209	900	74	64	996	46	52	60	209	131	137	84
Season Adjustment Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Future Adjustment Factor	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
2035 Peak Season Traffic	282	972	80	69	1076	50	56	65	226	141	148	91
2035 Total Traffic	**282**	**972**	**80**	**69**	**1,076**	**50**	**56**	**65**	**226**	**141**	**148**	**91**

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APPENDIX H

SYNCHRO ANALYSES

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	663	178	161	1066	318	389	637	144	294	881	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	290		0	250		65	500		0	100		0
Storage Lanes	1		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.95	0.95	0.97	0.95	0.95
Frt		0.968				0.850		0.972				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4923	0	1770	5085	1583	3433	3440	0	3433	3539	0
Flt Permitted	0.114			0.117			0.950			0.950		
Satd. Flow (perm)	212	4923	0	218	5085	1583	3433	3440	0	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				109		20				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			693			2632			798	
Travel Time (s)		17.7			15.8			59.8			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	721	193	175	1159	346	423	692	157	320	958	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	914	0	175	1159	346	423	849	0	320	958	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	7	4		3	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0	22.0	10.0	22.0		10.0	22.0	
Total Split (s)	16.0	40.0		23.0	47.0	47.0	30.0	60.0		27.0	57.0	
Total Split (%)	10.7%	26.7%		15.3%	31.3%	31.3%	20.0%	40.0%		18.0%	38.0%	
Maximum Green (s)	10.0	34.0		17.0	41.0	41.0	24.0	54.0		21.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	44.8	35.1		54.2	40.0	40.0	21.9	54.6		18.3	51.1	
Actuated g/C Ratio	0.31	0.24		0.37	0.27	0.27	0.15	0.37		0.12	0.35	
v/c Ratio	0.70	0.76		0.74	0.84	0.68	0.83	0.66		0.75	0.78	
Control Delay	55.7	54.5		52.8	56.8	39.8	75.2	40.7		73.6	48.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	55.7	54.5		52.8	56.8	39.8	75.2	40.7		73.6	48.5	
LOS	E	D		D	E	D	E	D		E	D	
Approach Delay		54.7			52.9			52.2			54.8	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 146.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 53.5 Intersection LOS: D
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Powerline Road & Prospect Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	65	226	141	148	91	282	972	80	69	1076	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	75		0	340		0	275		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.943			0.989			0.993	
Flt Protected		0.977		0.950			0.950			0.950		
Satd. Flow (prot)	0	1820	1583	1770	1757	0	1770	3500	0	1770	3514	0
Flt Permitted		0.729		0.388			0.106			0.224		
Satd. Flow (perm)	0	1358	1583	723	1757	0	197	3500	0	417	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		20			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		812			693			672			2632	
Travel Time (s)		18.5			15.8			15.3			59.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	71	246	153	161	99	307	1057	87	75	1170	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	246	153	260	0	307	1144	0	75	1224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.5	21.5	21.5	9.5	21.5		9.5	21.5		9.5	21.5	
Total Split (s)	28.0	28.0	28.0	16.0	44.0		36.0	93.2		12.8	70.0	
Total Split (%)	18.7%	18.7%	18.7%	10.7%	29.3%		24.0%	62.1%		8.5%	46.7%	
Maximum Green (s)	22.5	22.5	22.5	10.5	38.5		30.5	87.7		7.3	64.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	5.0	5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)		18.3	18.3	34.2	34.2		100.2	87.8		78.4	71.4	
Actuated g/C Ratio		0.13	0.13	0.24	0.24		0.69	0.60		0.54	0.49	
v/c Ratio		0.78	0.60	0.62	0.61		0.79	0.54		0.26	0.71	
Control Delay		90.7	12.7	58.8	52.1		42.2	18.5		13.1	33.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		90.7	12.7	58.8	52.1		42.2	18.5		13.1	33.5	
LOS		F	B	E	D		D	B		B	C	
Approach Delay		40.0			54.6			23.5			32.3	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 145.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 85.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: NW 38th Street & Powerline Road

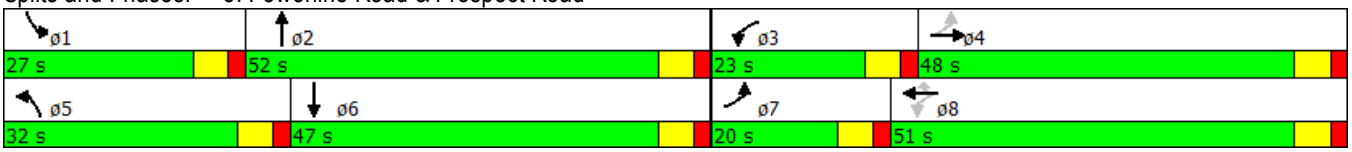
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	663	178	161	1066	318	389	637	144	294	881	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	290		0	250		65	500		0	100		0
Storage Lanes	1		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.91	0.91	0.97	0.91	0.91
Frt		0.968				0.850		0.972				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4923	0	1770	5085	1583	3433	4943	0	3433	5085	0
Flt Permitted	0.101			0.159			0.950			0.950		
Satd. Flow (perm)	188	4923	0	296	5085	1583	3433	4943	0	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				109		35				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			693			2632			798	
Travel Time (s)		17.7			15.8			59.8			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	721	193	175	1159	346	423	692	157	320	958	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	914	0	175	1159	346	423	849	0	320	958	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	7	4		3	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0	22.0	10.0	22.0		10.0	22.0	
Total Split (s)	20.0	48.0		23.0	51.0	51.0	32.0	52.0		27.0	47.0	
Total Split (%)	13.3%	32.0%		15.3%	34.0%	34.0%	21.3%	34.7%		18.0%	31.3%	
Maximum Green (s)	14.0	42.0		17.0	45.0	45.0	26.0	46.0		21.0	41.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	51.2	39.7		56.0	42.0	42.0	22.1	46.2		17.9	42.0	
Actuated g/C Ratio	0.36	0.28		0.39	0.30	0.30	0.16	0.33		0.13	0.30	
v/c Ratio	0.60	0.65		0.67	0.77	0.63	0.79	0.52		0.74	0.64	
Control Delay	41.8	45.4		39.7	49.7	35.2	69.7	39.5		71.3	46.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	41.8	45.4		39.7	49.7	35.2	69.7	39.5		71.3	46.7	
LOS	D	D		D	D	D	E	D		E	D	
Approach Delay		45.0			45.7			49.5			52.9	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 141.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 48.2 Intersection LOS: D
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: Powerline Road & Prospect Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	65	226	141	148	91	282	972	80	69	1076	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	75		0	340		0	275		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.943			0.989			0.993	
Flt Protected		0.977		0.950			0.950			0.950		
Satd. Flow (prot)	0	1820	1583	1770	1757	0	1770	5029	0	1770	5050	0
Flt Permitted		0.729		0.388			0.155			0.236		
Satd. Flow (perm)	0	1358	1583	723	1757	0	289	5029	0	440	5050	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		20			15			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		812			693			672			2632	
Travel Time (s)		18.5			15.8			15.3			59.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	71	246	153	161	99	307	1057	87	75	1170	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	246	153	260	0	307	1144	0	75	1224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.5	21.5	21.5	9.5	21.5		9.5	21.5		9.5	21.5	
Total Split (s)	28.0	28.0	28.0	16.0	44.0		36.0	93.2		12.8	70.0	
Total Split (%)	18.7%	18.7%	18.7%	10.7%	29.3%		24.0%	62.1%		8.5%	46.7%	
Maximum Green (s)	22.5	22.5	22.5	10.5	38.5		30.5	87.7		7.3	64.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	5.0	5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)		18.3	18.3	34.2	34.2		100.0	87.8		82.3	75.4	
Actuated g/C Ratio		0.13	0.13	0.24	0.24		0.69	0.60		0.57	0.52	
v/c Ratio		0.78	0.60	0.62	0.61		0.78	0.38		0.24	0.47	
Control Delay		90.7	12.7	58.8	52.1		29.8	15.4		12.1	24.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		90.7	12.7	58.8	52.1		29.8	15.4		12.1	24.5	
LOS		F	B	E	D		C	B		B	C	
Approach Delay		40.0			54.6			18.4			23.8	
Approach LOS		D			D			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 145.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 75.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: NW 38th Street & Powerline Road

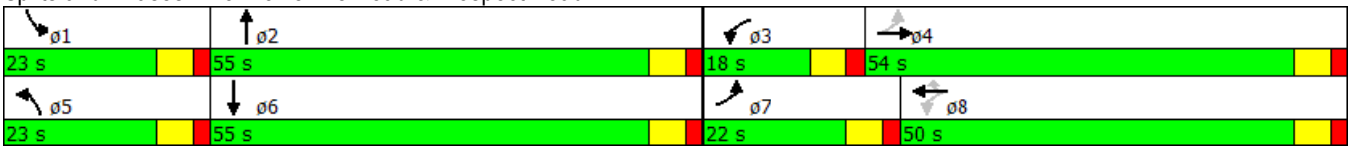
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	176	1041	282	110	509	296	228	698	165	269	606	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	290		0	250		65	500		0	100		0
Storage Lanes	1		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.95	0.95	0.97	0.95	0.95
Frt		0.968				0.850		0.971				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4923	0	1770	5085	1583	3433	3437	0	3433	3539	0
Flt Permitted	0.335			0.092			0.950			0.950		
Satd. Flow (perm)	624	4923	0	171	5085	1583	3433	3437	0	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				194		20				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			693			2632			798	
Travel Time (s)		17.7			15.8			59.8			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	1132	307	120	553	322	248	759	179	292	659	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	1439	0	120	553	322	248	938	0	292	659	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	7	4		3	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0	22.0	10.0	22.0		10.0	22.0	
Total Split (s)	22.0	54.0		18.0	50.0	50.0	23.0	55.0		23.0	55.0	
Total Split (%)	14.7%	36.0%		12.0%	33.3%	33.3%	15.3%	36.7%		15.3%	36.7%	
Maximum Green (s)	16.0	48.0		12.0	44.0	44.0	17.0	49.0		17.0	49.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	61.3	47.0		54.0	43.4	43.4	15.0	49.1		15.9	50.0	
Actuated g/C Ratio	0.42	0.32		0.37	0.30	0.30	0.10	0.33		0.11	0.34	
v/c Ratio	0.51	0.89		0.67	0.37	0.53	0.70	0.81		0.78	0.55	
Control Delay	31.7	54.2		49.4	42.0	20.2	75.3	50.5		79.3	41.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.7	54.2		49.4	42.0	20.2	75.3	50.5		79.3	41.9	
LOS	C	D		D	D	C	E	D		E	D	
Approach Delay		51.6			35.8			55.7			53.4	
Approach LOS		D			D			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 146.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 49.7 Intersection LOS: D
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Powerline Road & Prospect Road



Lanes, Volumes, Timings
2: NW 38th Street & Powerline Road

2/23/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	52	273	112	59	44	211	870	37	29	906	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	75		0	340		0	275		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.936			0.994			0.997	
Flt Protected		0.971		0.950			0.950			0.950		
Satd. Flow (prot)	0	1809	1583	1770	1744	0	1770	3518	0	1770	3529	0
Flt Permitted		0.754		0.394			0.188			0.270		
Satd. Flow (perm)	0	1405	1583	734	1744	0	350	3518	0	503	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			297		26			5			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		812			693			672			2632	
Travel Time (s)		18.5			15.8			15.3			59.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	57	297	122	64	48	229	946	40	32	985	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	297	122	112	0	229	986	0	32	1008	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.5	21.5	21.5	9.5	21.5		9.5	21.5		9.5	21.5	
Total Split (s)	34.0	34.0	34.0	16.0	50.0		32.0	90.0		10.0	68.0	
Total Split (%)	22.7%	22.7%	22.7%	10.7%	33.3%		21.3%	60.0%		6.7%	45.3%	
Maximum Green (s)	28.5	28.5	28.5	10.5	44.5		26.5	84.5		4.5	62.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	5.0	5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)		19.1	19.1	34.7	34.7		90.7	85.1		76.2	71.6	
Actuated g/C Ratio		0.14	0.14	0.25	0.25		0.66	0.62		0.56	0.52	
v/c Ratio		0.71	0.62	0.46	0.24		0.61	0.45		0.10	0.54	
Control Delay		76.7	11.6	47.0	32.1		17.1	15.6		11.2	24.6	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		76.7	11.6	47.0	32.1		17.1	15.6		11.2	24.6	
LOS		E	B	D	C		B	B		B	C	
Approach Delay		32.5			39.9			15.9			24.2	
Approach LOS		C			D			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 136.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: NW 38th Street & Powerline Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	663	178	161	1066	318	389	637	144	294	881	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	290		0	250		65	500		0	100		0
Storage Lanes	1		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.95	0.95	0.97	0.95	0.95
Frt		0.968				0.850		0.972				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4923	0	1770	5085	1583	3433	3440	0	3433	3539	0
Flt Permitted	0.114			0.117			0.950			0.950		
Satd. Flow (perm)	212	4923	0	218	5085	1583	3433	3440	0	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				109		20				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			693			2632			798	
Travel Time (s)		17.7			15.8			59.8			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	721	193	175	1159	346	423	692	157	320	958	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	914	0	175	1159	346	423	849	0	320	958	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	7	4		3	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0	22.0	10.0	22.0		10.0	22.0	
Total Split (s)	16.0	40.0		23.0	47.0	47.0	30.0	60.0		27.0	57.0	
Total Split (%)	10.7%	26.7%		15.3%	31.3%	31.3%	20.0%	40.0%		18.0%	38.0%	
Maximum Green (s)	10.0	34.0		17.0	41.0	41.0	24.0	54.0		21.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	44.8	35.1		54.2	40.0	40.0	21.9	54.6		18.3	51.1	
Actuated g/C Ratio	0.31	0.24		0.37	0.27	0.27	0.15	0.37		0.12	0.35	
v/c Ratio	0.70	0.76		0.74	0.84	0.68	0.83	0.66		0.75	0.78	
Control Delay	55.7	54.5		52.8	56.8	39.8	75.2	40.7		73.6	48.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	55.7	54.5		52.8	56.8	39.8	75.2	40.7		73.6	48.5	
LOS	E	D		D	E	D	E	D		E	D	
Approach Delay		54.7			52.9			52.2			54.8	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 146.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 53.5 Intersection LOS: D
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15

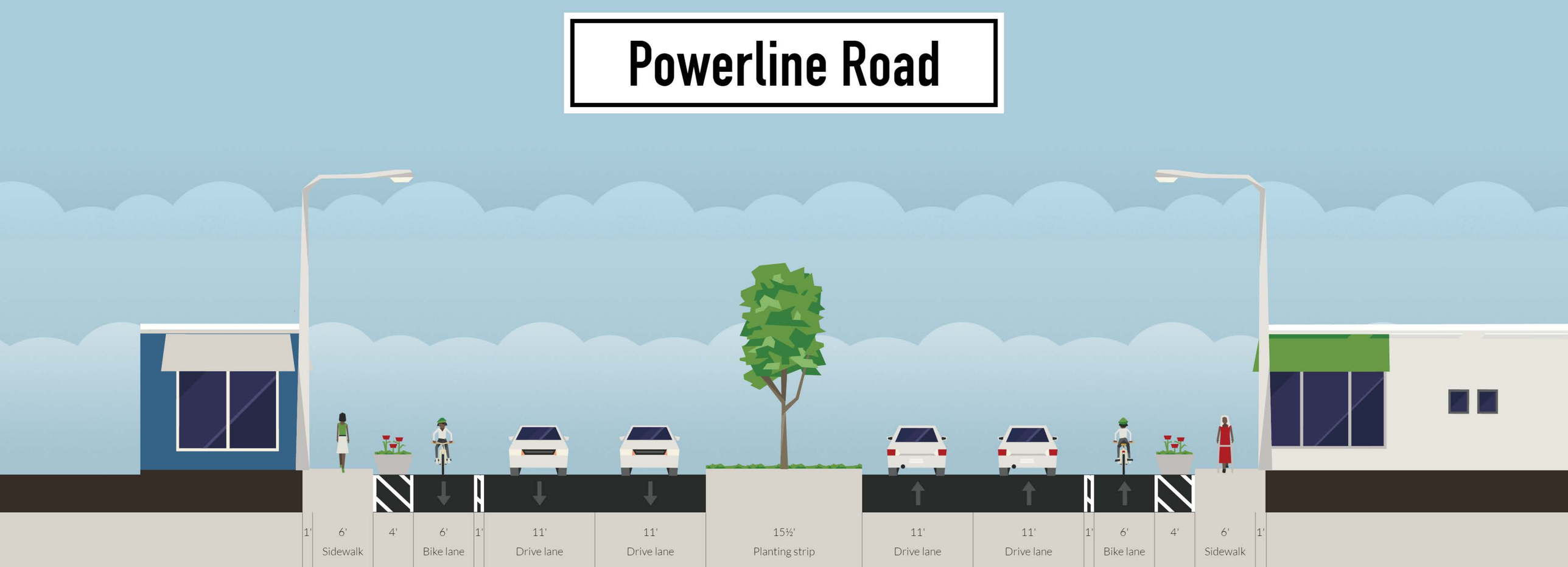
Splits and Phases: 5: Powerline Road & Prospect Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	65	226	141	148	91	282	972	80	69	1076	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	75		0	340		0	275		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.943			0.989			0.993	
Flt Protected		0.977		0.950			0.950			0.950		
Satd. Flow (prot)	0	1820	1583	1770	1757	0	1770	3500	0	1770	3514	0
Flt Permitted		0.729		0.388			0.106			0.224		
Satd. Flow (perm)	0	1358	1583	723	1757	0	197	3500	0	417	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		20			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		812			693			672			2632	
Travel Time (s)		18.5			15.8			15.3			59.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	71	246	153	161	99	307	1057	87	75	1170	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	246	153	260	0	307	1144	0	75	1224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.5	21.5	21.5	9.5	21.5		9.5	21.5		9.5	21.5	
Total Split (s)	28.0	28.0	28.0	16.0	44.0		36.0	93.2		12.8	70.0	
Total Split (%)	18.7%	18.7%	18.7%	10.7%	29.3%		24.0%	62.1%		8.5%	46.7%	
Maximum Green (s)	22.5	22.5	22.5	10.5	38.5		30.5	87.7		7.3	64.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	5.0	5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)		18.3	18.3	34.2	34.2		100.2	87.8		78.4	71.4	
Actuated g/C Ratio		0.13	0.13	0.24	0.24		0.69	0.60		0.54	0.49	
v/c Ratio		0.78	0.60	0.62	0.61		0.79	0.54		0.26	0.71	
Control Delay		90.7	12.7	58.8	52.1		42.2	18.5		13.1	33.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		90.7	12.7	58.8	52.1		42.2	18.5		13.1	33.5	
LOS		F	B	E	D		D	B		B	C	
Approach Delay		40.0			54.6			23.5			32.3	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 145.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 85.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: NW 38th Street & Powerline Road

Powerline Road