Task D

Return to:
Wendy Tucker
Planning

CITY OF KEY WEST
TRUMAN ANNEX DIVERSION STUDY

EXISTING CONDITIONS
ANALYSIS

Prepared for:

CITY OF KEY WEST

Prepared by:

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TRUMAN ANNEX DIVERSION STUDY
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INTRODUCTION

This traffic study is presented pursuant to the scope of services for the Truman Annex Traffic Diversion Study, Task One, Existing Conditions Analysis, by Tindale-Oliver and Associates, Inc. in conjunction with Kisinger Campo and Associates, Corp. The purpose of existing conditions analysis is to provide a baseline inventory of major transportation facilities located on the island of Key West in order to support future transportation planning decisions. Hence, the existing conditions analysis is part of a larger study which includes Origin and Destination Survey Analysis in Task Two, Parking Conditions Survey in Task Three, and Evaluation of Potential Diversion Routes in Task Four.

Pursuant to the Scope of Services for Task One, Existing Conditions Analysis, the Consultant collected data to be utilized in level of service analysis. This level of service analysis consisted of both arterial level of service analysis and Highway Capacity Manual intersection level of service analysis. In support of these level of service analysis efforts, the Consultant conducted extensive data collection in the City of Key West, during the month of April 1996. This data collection was coordinated with the City of Key West and the Florida Department of Transportation. Performing the data collection during April 1996 assisted the Consultant in minimizing the impacts from construction related detours on Truman Avenue. The Consultant was also able to utilize traffic count and turning movement count data collected by the Florida Department of Transportation in support of their upcoming PD&E study.

Transportation data collection on the island of Key West consisted primarily of machine traffic counts and turning movement counts at intersections. A total of 90 machine traffic counts were collected on various roadways in the City of Key West. These traffic count locations were approved by the City of Key West staff. Likewise, turning movement counts were performed at 24 intersections in the City of Key West by the Consultant. Once again, the location of turning movement counts was approved by the City of Key West. The Consultant also collected roadway attribute data to be utilized in level of service analysis. This attribute data includes such variables as the number of lanes, jurisdiction of facilities, and locations of signals and corresponding signal timings.

LINK LEVEL OF SERVICE CONDITIONS

Overall, most of the local neighborhood streets in the City of Key West operate at acceptable level of service conditions with many of the roadways operating at level of service A or B. (For definitions of level of service on links and intersections, the reader is referred to Appendix i-A, 1995 Highway Capacity Manual Level of Service Descriptions). This is better than the City of Key West adopted level of service standard of D. However, many of the arterials serving the City of Key West have level of service problems. These roadways include Eaton Street, Palm Avenue, Truman Avenue, North Roosevelt Boulevard, Flagler Avenue, and the First Street/Bertha Street corridor. These roadway corridors may be improved utilizing specific improvements which could include signal timing adjustments, geometry improvements, lane directional changes, and diversion of traffic. These types of potential improvements will be reviewed, analyzed and specific recommendations developed in a later task.

As previously mentioned, both arterial level of service analysis and intersection level of service analyses were completed for roadways identified on the study network. A total of 16 analysis segments and four intersections had a level of service F condition during the p.m. peak hour level of service analysis. Table i-1, Links Operating Below Level of Service Standard, tabulates links with level of service conditions below the adopted standard, and Table i-2, Intersections Operating Below Level of Service Standard, tabulates intersections with failing conditions. Some level of service deficiencies were the result of roadway segments which are carrying higher than normal volumes due to the construction related detour on Truman Avenue. Primarily, Eaton Street and Palm Avenue recorded level of service F conditions overall, as a result of the additional traffic volumes. On Eaton Street and Palm Avenue, adjusting volumes for the detour condition results in an overall level of service condition of D and C, respectively.

Traffic volumes on Truman Avenue, from White Street to Palm Avenue, indicate a level of service F condition. This section of Truman Avenue includes two links, a two-lane section from White Street to Eisenhower Drive, and a four-lane undivided section from Eisenhower Drive to Palm Avenue. The two-lane section operates at level of service F, while the four-lane section operates at level of service D. However, the overall link operates at level of service F because of the level of service condition of the two-lane section.

Table i - 1
Links Operating Below Level of Service Standard

ID	On Street	From	To	Road Type	Service Capacity	Physical Capacity	Existing					Detour Adjusted				
							Peak Hour Volume	Link		Aggregated		Peak Hour Volume	Link		Aggregated	
								Speed	LOS	Speed	LOS		Speed	LOS	Speed	LOS
1020010	Eaton St	Whitehead St	Duval St	2 U	1812	2157	446	16.36	C	5.07	F	446	16.36	C	12.95	D
1020020	Eaton St	Duval St	Simonton St	2 U	736	1078	960	5.13	F	5.07	F	960	5.13	F	12.95	D
1020030	Eaton St	Simonton St	Grinnell St	2 U	1586	1642	924	22.75	B	5.07	F	924	22.75	B	12.95	D
1020040	Eaton St	Grinnell St	White St	2 U	1887	1956	2286	2.99	F	5.07	F	1717*	13.09	C	12.95	D
1030010	Palm Ave	N Roosevelt Blv	Eisenhower Dr	2 U	1849	1849	2194	4.01	F	4.87	F	1625*	15.93	C	17.66	C
1030020	Palm Ave	Eisenhower Dr	White St	2 U	1956	1956	2194	6.79	F	4.87	F	1625*	20.63	B	17.66	C
1040050	Truman Ave	White St	Eisenhower Dr	2 U	1070	1226	1450	2.13	F	4.07	F	2019*	0.52	F	1.10	F
1040060	Truman Ave	Eisenhower Dr	Palm Ave	4 U	1827	2070	1450	12.57	D	4.07	F	2019*	6.19	F	1.10	F
1050010	North Roosevelt Blvd	First St	Fourth St	4 D	3232	3463	2893	17.41	D	7.79	F	2893	17.41	D	7.79	F
1050020	North Roosevelt Blvd	Fourth St	Fifth St	4 D	2	3463	2893	8.65	F	7.79	F	2893	8.65	F	7.79	F
1050030	North Roosevelt Blvd	Fifth St	Overseas Mkt	4 D	2883	2884	3463	7.09	F	7.79	F	3463	7.09	F	7.79	F
1050040	North Roosevelt Blvd	Overseas Mkt	Kennedy Dr	4 D	2103	2625	2881	6.08	F	7.79	F	2881	6.08	F	7.79	F
1080030	Flagler Ave	First St	Fifth St	2 U	1186	1402	1759	2.08	F	4.56	F	1759	2.08	F	4.56	F
1080040	Flagler Ave	Fifth St	Kennedy Dr	4 D	1488	1590	1751	8.89	F	4.56	F	1751	8.89	F	4.56	F
2070010	First St	Flagler Ave	North Roosevelt	2 U	555	684	726	5.79	F	5.79	F	726	5.79	F	5.79	F
2080020	Bertha St	Atlantic Blvd	Flagler Ave	2 U	351	684	648	6.09	F	6.09	F	648	6.09	F	6.09	F

Table i-2 -- Intersections Operating Below Level of Service Standard

INTERSECTION	APPROACH LEVEL OF SERVICE				
	NB	SB	EB	WB	INTERSECTION LEVEL OF SERVICE
Bertha/First and Flagler	C	D	C	*1	*1
Kennedy and Flagler	B	B	*1	D	*1
Palm/First and N. Roosevelt	F	D	E	C	D
Eaton and White*2	D	B	B	*1	*1

Note: *1 Volume exceeds physical capacity, level of service F condition
*2 Data collected for Key West Bight CIAS

The next set of roadway segments operating below the level of service standard was North Roosevelt Boulevard, from First Street to Kennedy Drive. This section of North Roosevelt Boulevard is divided into four analysis segments which, when analyzed together, indicate a level of service F condition. Only the analysis segment from First Street to Bertha Street operated at the level of service D standard; the other three links operated at level of service F.

Three of the final four segments operating below the level of service standard do so because of the influence of the intersection of Flagler Avenue with First Street/Bertha Street. These segments include Flagler Avenue, from First Street to Fifth Street; First Street, from Flagler Avenue to North Roosevelt Boulevard; and Bertha Street, from Atlantic Boulevard to Flagler Avenue. All of these analysis segments indicate an operating condition of level of service F. The approaches to each one of these roadway segments to the intersection of Flagler Avenue at First Street/Bertha Street are adversely impacted due to the intersection geometry which currently exists. At this time, Bertha Street is offset to the east of First Street, necessitating a split phase operation for north and southbound movements. In addition to the results of the arterial level of service analysis, the intersection level of service analysis of the Flagler Avenue and First Street/Bertha Street intersection also indicates poor level of service conditions, particularly, for the westbound movements.

The final remaining link analyzed using arterial level of service analysis procedures was Flagler Avenue, from Fifth Street to Kennedy Drive. This link indicates a level of service F condition. One of the reasons this link failed is due to the high green time to total signal cycle length time allocated to the southbound left-turn movement on Kennedy Drive.

INTERSECTION LEVEL OF SERVICE CONDITIONS

In addition to the intersection of Flagler Avenue with First Street/Bertha Street, three other intersections are projected to operate below the level of service standard for at least one traffic movement. These intersections include Kennedy Drive at Flagler Avenue, Palm Avenue/First Street and North Roosevelt Boulevard, and Eaton Street at White Street. All intersection level of service analysis reflect actual traffic volumes unadjusted for detour conditions.

The first intersection analyzed was Kennedy Drive at Flagler Avenue. As Table i-2 illustrates, a level of service B condition exists for northbound and southbound movements on Kennedy Drive, while a failing level of service condition exists for the eastbound movement and a level of service D condition exists for the westbound movement.

The second intersection analyzed, North Roosevelt Boulevard at Palm Avenue/First Street, was impacted by the detour caused by Truman Avenue construction which took place during data collection. Intersection level of service analysis indicates a level of service F condition for the northbound approach, level of service D for the southbound approach, level of service E for eastbound, and level of service C for the westbound approach. Overall, the intersection obtained a level of service D condition. This intersection is characterized by a heavy southbound left-turn movement from Palm Avenue onto North Roosevelt Boulevard. The exceedingly high green time to total cycle length time necessary to accommodate this left-turn movement decreases the available green time available for the eastbound and westbound movements, as well as the northbound movement.

The last intersection analyzed was the intersection of Eaton Street and White Street. At this intersection, the westbound approach volume exceeds its physical capacity. The northbound approach had a level of service D condition, while the southbound and eastbound approaches both have level of service B conditions. However, this corridor could experience additional

traffic growth in the future, and the existing traffic volumes may represent realistic conditions for the near future.

RECOMMENDED ALTERNATIVE ANALYSIS

The purpose of this task was to present the existing condition analysis of the road network and key intersections. Information from the existing condition analysis will be used to develop alternatives and improvement recommendations in Task Four, Evaluation of Potential Diversion Routes. Based on the Consultant's review of the existing road network and intersection conditions, the following types of alternatives will be reviewed in Task Four.

- Signal timing adjustments at a number of signalized locations including:
  - North Roosevelt Boulevard at Kennedy Drive;
  - North Roosevelt Boulevard at Palm Avenue;
  - Palm Avenue/Eaton Street at White Street;
  - Flagler Avenue at First Street/Bertha Street; and
  - Flagler Avenue at Kennedy Avenue.

- Interconnection of signals along the following corridors:
  - North Roosevelt Boulevard;
  - Truman Avenue; and
  - Palm Avenue/Eaton Street.

- Creating a one-way pair system for Eaton Street using Caroline Street, and for Palm Avenue using Eisenhower Boulevard. Palm Avenue would be improved to four lanes between White Street and Eisenhower Boulevard.

- Improvements to lane geometry at the following intersections:
  - Flagler Avenue at First Street/Bertha Street;
  - Palm Avenue/Eaton Street at White Street;
  - Eaton Avenue at Grinnell Street; and
  - North Roosevelt Boulevard at Palm Avenue.

- Other directional changes to streets in and around the new Grinnell Street Park 'n' Ride Garage to facilitate improved site area circulation;

- The feasibility of diverting traffic onto the island to South Roosevelt Boulevard as opposed to North Roosevelt Boulevard;

- The effect of improved signage directing vehicular traffic to the Old Town area;

Other types of improvements will be considered as appropriate, based on comments received on this Technical Memorandum, as well as the Task Two, Origin and Destination Survey Technical Memorandum.

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CITY OF KEY WEST
TRUMAN ANNEX DIVERSION STUDY
EXISTING CONDITIONS ANALYSIS

INTRODUCTION

This traffic study is presented pursuant to the scope of services for the Truman Annex Traffic Diversion Study, Task One, Existing Conditions Analysis, by Tindale-Oliver and Associates, Inc. in conjunction with Kisinger Campo and Associates, Corp. The purpose of existing conditions analysis is to provide a baseline inventory of major transportation facilities located on the island of Key West in order to support future transportation planning activities on the island, especially Task Four, Evaluation of Potential Diversion Routes. Hence, the existing conditions analysis is part of a larger study which includes Origin and Destination Survey Analysis in Task Two and Parking Conditions Survey in Task Three.

The scope of activities included as part of Task One, Existing Conditions Analysis, includes data collection and level of service analysis. In support of the data analysis activities, the Consultant conducted twenty-four five-hour turning movement counts and ninety twenty-four hour machine traffic counts. The Consultant coordinated the collection of traffic data with the Florida Department of Transportation to prevent any duplication of effort. The Consultant produced a tabular summary of level of service variables to inventory the existing 1996 traffic conditions. This inventory includes Annualized Average Daily Traffic (AADT) counts as well as other attributes required to perform highway capacity analysis in compliance with the 1995 Florida Department of Transportation Level of Service Manual and the Highway Capacity Manual, Third Edition (1994). Both arterial and intersection level of service analysis is included in this Technical Memorandum. The sections which follow summarize the data collection and analysis activities which took place as part of the Existing Conditions Analysis effort.

STUDY KICK-OFF MEETING

A study kick-off meeting was conducted on May 26, 1995 for the purpose of discussing issues pertinent to the Truman Annex Traffic Diversion Study. During this meeting the Consultant met with the staff of the City of Key West and reviewed the study network and timing of data collection. The City of Key West staff recommended that the collection of traffic data be performed during the peak season. They further recommended the delay of data collection activities until the completion of construction activities on major thoroughfares resulting in significant detours which could potentially effect the quality of the data collected. As a result of the delay imposed by construction activities on Truman Avenue, data collection did not take place until April 1996. The City of Key West staff also requested the Consultant to coordinate data collection with the FDOT to avoid duplication of effort.

The City of Key West staff also recommended the study of additional roadways not included in the original network to determine future diversion potential. These additional roadways required additional data collection and analysis activities. As a result of the inclusion of additional roadways to be analyzed, a total of ninety machine traffic counts and twenty-four turning movement counts were to be analyzed as part of the Truman Annex Traffic Diversion Study. After the removal of locations where data collection was being performed by the FDOT, the additional network roads to be analyzed resulted in an additional thirty machine traffic counts and four turning movement counts to the total numbers detailed in the original scope of services.

As part of Task Two - Origin and Destination Surveys of the Truman Annex Traffic Diversion study the Consultant was to perform licence plate surveys. Since the study kick-off meeting, it was determined that the licence plate surveys would not be useful. The City of Key West and the Consultant agreed that as an alternative for the licence plate survey, the Consultant would perform the additional thirty machine traffic counts, four turning movement counts, and additional patron surveys as detailed in the Origin and Destination Survey Technical Memorandum. Appendix A details the additional data collections needs required by the expanded study network This appendix

also contains an approval letter from the City of Key West staff for the change in the original Scope of Services.

STUDY NETWORK DEFINITION

The network upon which the Existing Conditions Analysis is being performed upon includes roadways which were on both the original network identified in the scope of services and the alternate network added later. The study network includes all arterial roadways and most local collector roadways. The Consultant segmented roadways into segments to facilitate data collection and level of service analysis. Table 1, 1996 Existing Conditions Analysis (HCS) describes the location characteristics of the roadway segments being analyzed along with their length, jurisdictional responsibility, and functional classification as recommended in the City of Key West, Comprehensive Plan, July 1993. Figure 1, Inventory Network, identifies the location of roadway segments utilized for level of service analysis. Figure 2, Number of Lanes and Facility Type, illustrates the existing number of lanes which were analyzed for the existing conditions analysis. Finally, Figure 3, Jurisdictional Responsibility, illustrates which network roads are there responsibility of the State, County, and City.

DATA COLLECTION

As part of the Truman Annex Traffic Diversion Study, Consultant was responsible for collecting and developing databases which inventoried the transportation characteristics including traffic volumes and basic roadway geometry. At the request of the City of Key West Staff, the Consultant took steps to coordinate data collection with the Florida Department of Transportation to mitigate any duplication of effort. The principle data collection activities which were the responsibility of the consultant was:

- Coordination and use of data from the Florida Department of Transportation.
- Collection of Machine Traffic Counts

Table 1

City of Key West
1996 Existing Conditions Analysis (HCS)

	Filenames	Filedates
Mrn:	G:\KEYWEST\1996\HCS\DATA\KWMRN.DBF	September 24, 1996
Analysis:	G:\KEYWEST\1996\HCS\DATA\KW1996.DBF	September 25, 1996

Date: 25-Sep-96
Time: 10:50:51

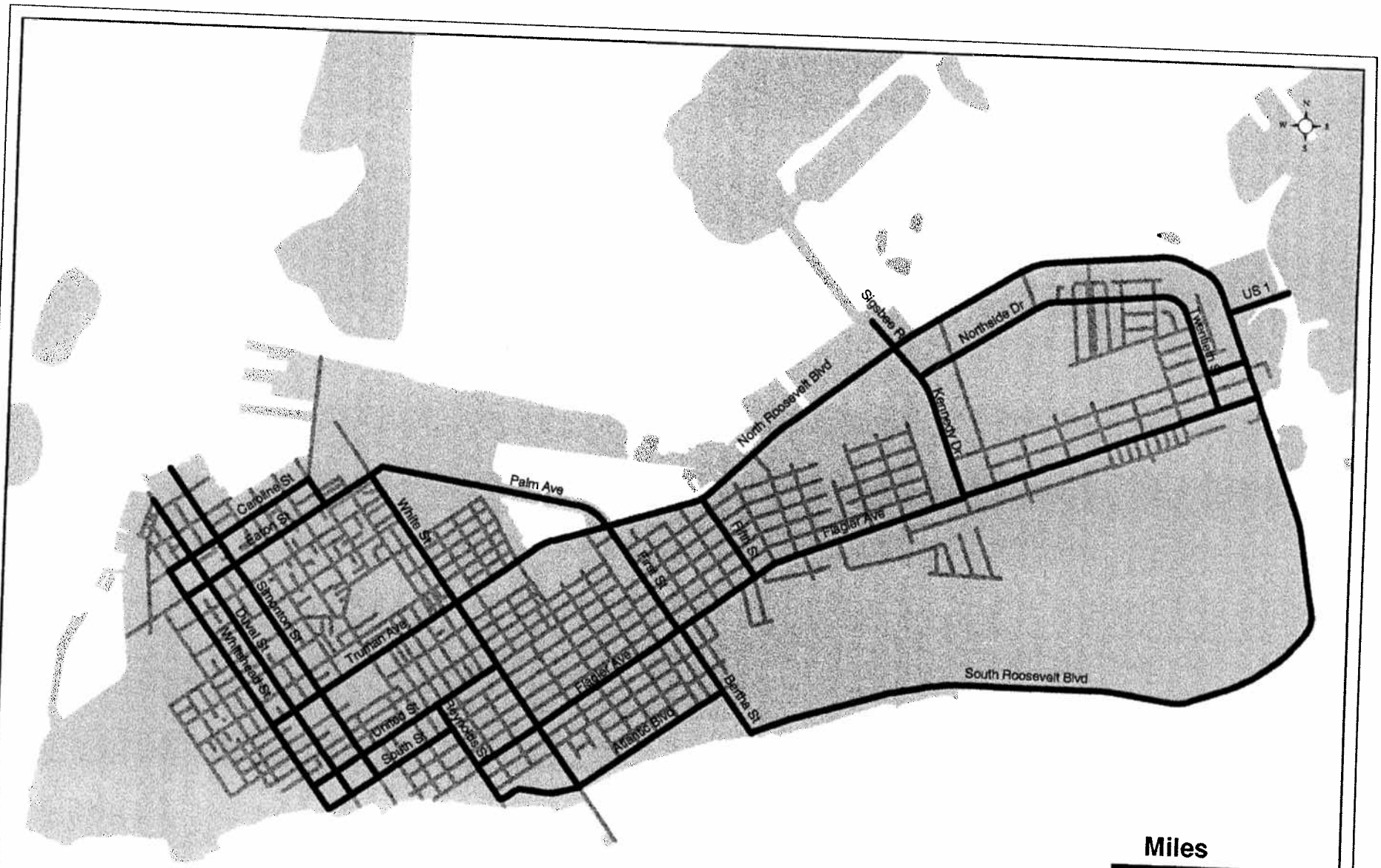
Id	Seg No.	On Street	From	To	Length / Art Class / Peak Vol	Lanes / Sat Flow / Vmt	Type / PHF / VHT	Perf_Std / %Turns / Psmult	CS1 / Area / SvcCap	CS2 / Spd Limit / PCap	CAFT / Arr Type / V:S CAP	No_sig / %No Pass / V:P CAP	D_Fac / Ctrl Type / Spd1	K100 / Sr Cyc Len / Los1	Fyvolm / Cyc Len / Agg Seg #	Source / Sr G:C / Agg Spd	AADT / G:C Ratio / Agg Los
1010010	0	Caroline St	Whitehead St	Duval St	0.08	2	U	D	90002	0	5	1	0.568	0.088		TOA	2514
					0	1700	0.910	0	1	25	3	0	3		30		0.700
					221	18	0.0	1.00	1903	2095	0.116	0.105	0.00	A	0	0.00	A
1010020	0	Caroline St	Duval St	Simonton St	0.10	2	U	D	90003	0	5	1	0.568	0.088		TOA	3601
					0	1700	0.910	0	1	25	3	0	3		60		0.330
					317	32	0.0	1.00	883	988	0.359	0.320	0.00	B	0	0.00	B
1010030	0	Caroline St	Simonton St	Grinnell St	0.34	2	U	D	90005	0	5	1	0.568	0.088		TOA	4440
					0	1700	0.910	0	1	25	3	0	3		60		0.330
					391	133	0.0	1.00	883	988	0.442	0.395	0.00	B	0	0.00	B
1020010	1	Eaton St	Whitehead St	Duval St	0.08	2	U	D	90008	0	2	1	0.568	0.088		TOA	5071
					3	1750	0.900	0	1	30	3	0	3	NoSig	30		0.700
					446	36	2.2	1.00	1812	2157	0.246	0.206	16.36	C	1	5.07	F
1020020	1	Eaton St	Duval St	Simonton St	0.10	2	U	D	90011	0	2	1	0.568	0.088		TOA	10910
					3	1750	0.900	0	1	30	3	0	3		60		0.350
					960	96	18.7	1.00	736	1078	1.304	0.890	5.13	F	1	5.07	F
1020030	1	Eaton St	Simonton St	Grinnell St	0.34	2	U	D	90012	90041	2	1	0.568	0.088		TOA	10502
					3	1750	0.870	0	1	30	3	0	3		60		0.533
					924	314	13.8	1.00	1586	1642	0.583	0.562	22.75	B	1	5.07	F
1020040	1	Eaton St	Grinnell St	White St	0.17	2	U	D	90042	0	2	1	0.568	0.088		TOA	25975
					3	1750	0.950	0	2	30	3	0	3		63		0.635
					2286	389	130.0	1.00	1887	1956	1.211	1.168	2.99	F	1	5.07	F
1030010	2	Palm Ave	N Roosevelt Blv	Eisenhower Dr	0.45	2	U	D	90043	0	2	1	0.568	0.088		TOA	24929
					3	1750	0.860	0	2	30	3	0	3	EST	60	EST	0.600
					2194	987	245.9	1.00	1849	1849	1.186	1.186	4.01	F	2	4.87	F
1030020	2	Palm Ave	Eisenhower Dr	White St	0.34	2	U	D	90043	0	2	1	0.568	0.088		TOA	24929
					3	1750	0.950	0	2	30	3	0	3		63		0.635
					2194	746	109.8	1.00	1956	1956	1.122	1.121	6.79	F	2	4.87	F

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
1100040	11	South Roosevelt Blvd	Flagler Ave	US1	0.28	4	D	D	95090	0	2	1	0.568	0.088		FDOT	17717
					1	1750	0.950	0	2	45	3	0	2		94		1.000
					1559	437	12.3	1.00	5855	6162	0.266	0.253	35.53	A	11	40.74	A
1110010	0	Northside Dr	Kennedy Dr	Twentieth St	0.81	2	U	D	90078	90079	5	2	0.568	0.088		TOA	9230
					0	1700	0.910	0	2	25	3	0	3		78		0.386
					812	658	0.0	1.00	1029	1155	0.789	0.703	0.00	C	0	0.00	C
1120010	0	US1	Roosevelt Blvd	Cow Key Channel	0.20	4	D	D	95190	0	2	1	0.568	0.088		EST	40149
					1	1750	0.950	0	2	45	3	0	2		94	TOA	1.000
					3533	707	21.7	1.00	5855	6162	0.603	0.573	32.58	B	0	32.58	B
1130010	0	Duck Ave	Twentieth St	S Roosevelt Blv	0.13	2	U	D	90087	0	5	1	0.568	0.088		TOA	4523
					0	1700	0.910	0	2	25	3	0	3	NoSig	30		0.700
					398	52	0.0	1.00	1903	2095	0.209	0.189	0.00	A	0	0.00	A
2010010	13	Whitehead St	South St	United St	0.09	2	U	D	90032	0	4	0	0.568	0.088		TOA	3334
					3	1700	0.740	0	1	30	0	0	0		0		0.000
					293	26	0.9	1.00	1261	1883	0.233	0.155	28.89	B	13	29.52	A
2010020	13	Whitehead St	United St	Truman Ave	0.23	2	U	D	90024	90031	4	0	0.568	0.088		TOA	4829
					3	1700	0.740	0	1	30	0	0	0		0		0.000
					425	98	3.3	1.00	1261	1883	0.337	0.225	29.70	B	13	29.52	A
2010030	14	Whitehead St	Truman Ave	Southard St	0.31	2	U	D	90017	90021	2	1	0.568	0.088		TOA	7833
					3	1750	0.910	0	1	30	3	0	3		50		0.400
					689	214	10.1	1.00	1216	1232	0.567	0.559	21.19	B	14	15.69	C
2010040	14	Whitehead St	Southard St	Fleming St	0.09	2	U	D	90014	0	2	1	0.568	0.088		TOA	6635
					3	1750	0.910	0	1	30	3	0	3		73		0.411
					584	53	5.4	1.00	747	1266	0.782	0.461	9.81	D	14	15.69	C
2010050	14	Whitehead St	Fleming St	Eaton St	0.08	2	U	D	90009	0	2	1	0.568	0.088		TOA	8174
					3	1750	0.910	0	1	30	3	0	3		77		0.455
					719	58	6.4	1.00	718	1402	1.002	0.512	9.06	E	14	15.69	C
2010060	14	Whitehead St	Eaton St	Caroline St	0.10	2	U	D	90009	0	4	0	0.568	0.088		TOA	8174
					3	1700	0.910	0	1	30	0	0	0		0		0.000
					719	72	3.4	1.00	1551	2315	0.464	0.310	21.18	C	14	15.69	C
2020010	0	Duval St	South St	United St	0.09	2	U	D	90034	0	4	0	0.568	0.088		TOA	4566
					3	1700	0.790	0	1	30	0	0	0		0		0.000
					402	36	2.2	1.00	1347	2010	0.298	0.200	16.36	B	0	16.36	B
2020020	0	Duval St	United St	Truman Ave	0.23	2	U	D	90026	90033	5	1	0.568	0.088		TOA	9930
					0	1700	0.870	0	1	25	3	0	3		54		0.370
					874	201	0.0	1.00	962	1107	0.908	0.789	0.00	C	0	0.00	C
2020030	0	Duval St	Flagler Ave	Angela St	0.23	2	U	D	90020	90025	5	1	0.568	0.088		TOA	10883
					0	1700	0.870	0	1	25	3	0	3		54		0.370
					958	220	0.0	1.00	962	1107	0.996	0.865	0.00	D	0	0.00	D
2020040	0	Duval St	Angela St	Southard St	0.08	2	U	D	90018	0	5	1	0.568	0.088		TOA	12806
					0	1700	0.870	0	1	25	3	0	3		60		0.433
					1127	90	0.0	1.00	1125	1296	1.002	0.869	0.00	D	0	0.00	D

Id	Seg No.	On Street	From	To	Length / Art Class / Peak Vol	Lanes / Sat Flow / Vmt	Type / PHF / VHT	Perf_Std / %Turns / Psmult	CS1 / Area / SvcCap	CS2 / Spd Limit / PCap	CAFT / Arr Type / V:S CAP	No_sig / %No Pass / V:P CAP	D_Fac / Ctrl Type / Spd1	K100 / Sr Cyc Len / Los1	Fyvolm / Cyc Len / Agg Seg #	Source / Sr G:C / Agg Spd	AADT / G:C Ratio / Agg Los
2020050	0	Duval St	Southard St	Fleming St	0.10 0 1009	2 1700 101	U 0.720 0.0	D 0 1.00	90015 1 946	0 25 1317	5 3 1.067	1 0 0.766	0.568 3 0.00	0.088 E	 60 0	TOA 0.00	11470 0.440 E
2020060	0	Duval St	Fleming St	Eaton St	0.08 0 896	2 1700 72	U 0.900 0.0	D 0 1.00	90010 1 1129	0 25 1257	5 3 0.793	1 0 0.712	0.568 3 0.00	0.088 B	 50 0	TOA 0.00	10177 0.420 B
2020070	0	Duval St	Eaton St	Caroline St	0.10 0 808	2 1700 81	U 0.910 0.0	D 0 1.00	90007 1 1495	0 25 1646	5 3 0.540	1 0 0.490	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	9180 0.550 B
2020080	0	Duval St	Caroline St	Green St.	0.09 0 483	2 1700 43	U 0.910 0.0	D 0 1.00	90001 1 1359	0 25 1496	5 3 0.355	1 0 0.322	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	5484 0.500 B
2020090	0	Duval St	Green St.	Front St.	0.09 3 483	2 1700 43	U 0.910 0.0	D 0 1.00	90001 1 1087	0 30 1197	5 3 0.444	1 0 0.403	0.568 3 0.00	0.088 Def B	 60 0	TOA 0.00	5484 0.400 B
2020100	0	Duval St	Green St	Wall St	0.04 0 483	2 1700 19	U 0.950 0.0	D 0 1.00	90001 1 1419	0 25 1496	5 3 0.340	1 0 0.322	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	5484 0.500 B
2030010	0	Simonton St	South St	United St	0.09 0 425	2 1700 38	U 0.930 0.0	D 0 1.00	90038 1 1389	0 25 1496	5 3 0.306	1 0 0.284	0.568 3 0.00	0.088 B	 61 0	TOA 0.00	4825 0.500 B
2030020	0	Simonton St	United St	Truman Ave	0.23 0 568	2 1700 131	U 0.790 0.0	D 0 1.00	90030 1 984	90036 25 1248	5 3 0.578	1 0 0.455	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	6460 0.417 B
2030030	0	Simonton St	Truman Ave	Southard St	0.31 0 637	2 1700 197	U 0.910 0.0	D 0 1.00	90019 1 1259	90028 25 1386	5 3 0.506	1 0 0.459	0.568 3 0.00	0.088 B	 70 0	TOA 0.00	7239 0.463 B
2030040	0	Simonton St	Southard St	Fleming St	0.10 0 678	2 1700 68	U 0.900 0.0	D 0 1.00	90013 1 1344	90019 25 1496	5 3 0.504	1 0 0.453	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	7700 0.500 B
2030050	0	Simonton St	Fleming St	Eaton St	0.08 0 655	2 1700 52	U 0.900 0.0	D 0 1.00	90013 1 1344	0 25 1496	5 3 0.487	1 0 0.437	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	7444 0.500 B
2030060	0	Simonton St	Eaton St	Caroline St	0.10 0 712	2 1700 71	U 0.870 0.0	D 0 1.00	90006 1 1143	0 25 1317	5 3 0.623	1 0 0.540	0.568 3 0.00	0.088 B	 66 0	TOA 0.00	8088 0.440 B
2030070	0	Simonton St	Caroline St	Water	0.27 0 662	2 1700 179	U 0.910 0.0	D 0 1.00	90004 1 1196	0 25 1317	5 3 0.553	1 0 0.502	0.568 3 0.00	0.088 B	 60 0	TOA 0.00	7519 0.440 B
2040010	0	Reynolds St	Atlantic Blvd	Flagler Ave	0.13 3 377	2 1700 49	U 0.870 2.3	D 0 1.00	90056 2 1483	0 30 2213	4 0 0.254	0 0 0.170	0.568 0 21.30	0.088 B	 0 0	TOA 21.30	4284 0.000 B

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
2040020	0	Reynolds St	Flagler Ave	South St	0.14	2	U	D	90055	0	4	0	0.568	0.088		TOA	5611
					3	1700	0.870	0	2	30	0	0	0		0		0.000
					494	69	3.3	1.00	1483	2213	0.333	0.223	20.91	B	0	20.91	B
2040030	0	Reynolds St	South St	United St	0.09	2	U	D	90052	0	5	1	0.568	0.088		TOA	2482
					0	1700	0.850	0	2	25	3	0	3		30		0.700
					218	20	0.0	1.00	1777	2095	0.123	0.104	0.00	A	0	0.00	A
2050010	0	Grinnell St	Eaton St	Caroline St	0.10	2	U	D	90118	0	5	1	0.568	0.088		TOA	8742
					0	1700	0.900	0	1	25	3	0	3		60		0.333
					769	77	0.0	1.00	881	997	0.873	0.771	0.00	C	0	0.00	C
2060010	0	White St	Atlantic Blvd	Flagler Ave	0.23	2	U	D	90064	0	5	1	0.568	0.088		TOA	4917
					0	1700	0.940	0	2	25	3	0	3	NoSig	15		0.700
					433	100	0.0	1.00	1966	2095	0.220	0.206	0.00	A	0	0.00	A
2060020	0	White St	Flagler Ave	United St	0.23	2	U	D	90060	90061	5	1	0.568	0.088		TOA	8625
					0	1700	0.850	0	2	25	3	0	3		64		0.469
					759	175	0.0	1.00	1191	1404	0.637	0.540	0.00	B	0	0.00	B
2060030	0	White St	United St	Truman Ave	0.23	2	U	D	90049	90058	5	1	0.568	0.088		TOA	10224
					0	1700	0.830	0	2	25	3	0	3		108		0.550
					900	207	0.0	1.00	1358	1646	0.663	0.546	0.00	B	0	0.00	B
2060040	0	White St	Truman Ave	Southard St	0.31	2	U	D	90088	0	5	1	0.568	0.088		TOA	9314
					0	1700	0.830	0	2	25	3	0	3		108		0.550
					820	254	0.0	1.00	1358	1646	0.604	0.498	0.00	B	0	0.00	B
2060050	0	White St	Southard St	Eaton St	0.17	2	U	D	90044	0	5	1	0.568	0.088		TOA	6671
					0	1700	0.950	0	2	25	3	0	3	Est	60	Est	0.400
					587	100	0.0	1.00	1135	1197	0.517	0.490	0.00	B	0	0.00	B
2070010	0	First St	Flagler Ave	North Roosevelt	0.39	2	U	D	95150	90067	2	1	0.568	0.088		BOTH	8252
					2	1750	0.880	0	2	40	3	0	3		93		0.222
					726	283	48.9	1.00	555	684	1.308	1.061	5.79	F	0	5.79	F
2080010	0	Bertha St	S Roosevelt Blv	Atlantic Blvd	0.16	2	U	D	90073	0	4	0	0.568	0.088		TOA	11438
					2	1750	0.860	0	2	40	0	0	0		0		0.000
					1007	161	5.4	1.00	1509	2252	0.667	0.447	29.81	C	0	29.81	C
2080020	0	Bertha St	Atlantic Blvd	Flagler Ave	0.24	2	U	D	90070	90072	2	1	0.568	0.088		TOA	7369
					2	1750	0.880	0	2	40	3	0	3		93		0.222
					648	156	25.6	1.00	351	684	1.847	0.947	6.09	F	0	6.09	F
2090010	0	Fifth St	Flagler Ave	N Roosevelt Blv	0.30	2	U	D	95160	90075	5	1	0.568	0.088		BOTH	4055
					0	1700	0.910	0	2	25	3	0	3		63		0.317
					357	107	0.0	1.00	841	949	0.424	0.376	0.00	B	0	0.00	B
2100010	0	Kennedy Dr	Flagler Ave	Northside Dr	0.41	4	U	D	90077	90082	5	1	0.568	0.088		TOA	8427
					0	1700	0.880	0	2	25	3	0	3		78		0.513
					742	304	0.0	1.00	2697	3071	0.275	0.241	0.00	B	0	0.00	B
2100020	0	Kennedy Dr	Northside Dr	N Roosevelt Blv	0.12	4	U	D	95170	0	5	1	0.568	0.088		FDOT	8687
					0	1700	0.950	0	2	25	3	0	2		100		0.250
					764	92	0.0	1.00	1324	1496	0.577	0.510	0.00	D	0	0.00	D

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
2100030	0	Sigsbee Rd	N Roosevelt Blv	Island	0.11	2	U	D	95180	0	5	1	0.568	0.088		EST	6269
					0	1700	0.950	0	2	25	3	0	2		100		0.293
					552	61	0.0	1.00	753	877	0.733	0.629	0.00	D	0	0.00	D
2110010	0	Twentieth St	Flagler Ave	Duck Ave	0.12	2	U	D	90086	0	5	1	0.568	0.088		TOA	836
					0	1700	0.910	0	2	25	3	0	3	NoSig	30		0.300
					74	9	0.0	1.00	815	898	0.090	0.082	0.00	B	0	0.00	B
2110020	0	Twentieth St	Duck Ave	Northside Dr	0.33	2	U	D	90086	0	4	0	0.568	0.088		TOA	836
					3	1700	0.910	0	2	30	0	0	0		0		0.000
					74	24	0.9	1.00	1551	2315	0.047	0.031	26.67	B	0	26.67	B



Legend

Inventory Network

Figure 1

City of Key West

Inventory Network

Tindale - Oliver and Associates, Inc.
09/23/96 04:25 PM
Geographic KWBASE
Project FIG1
Database KW1996

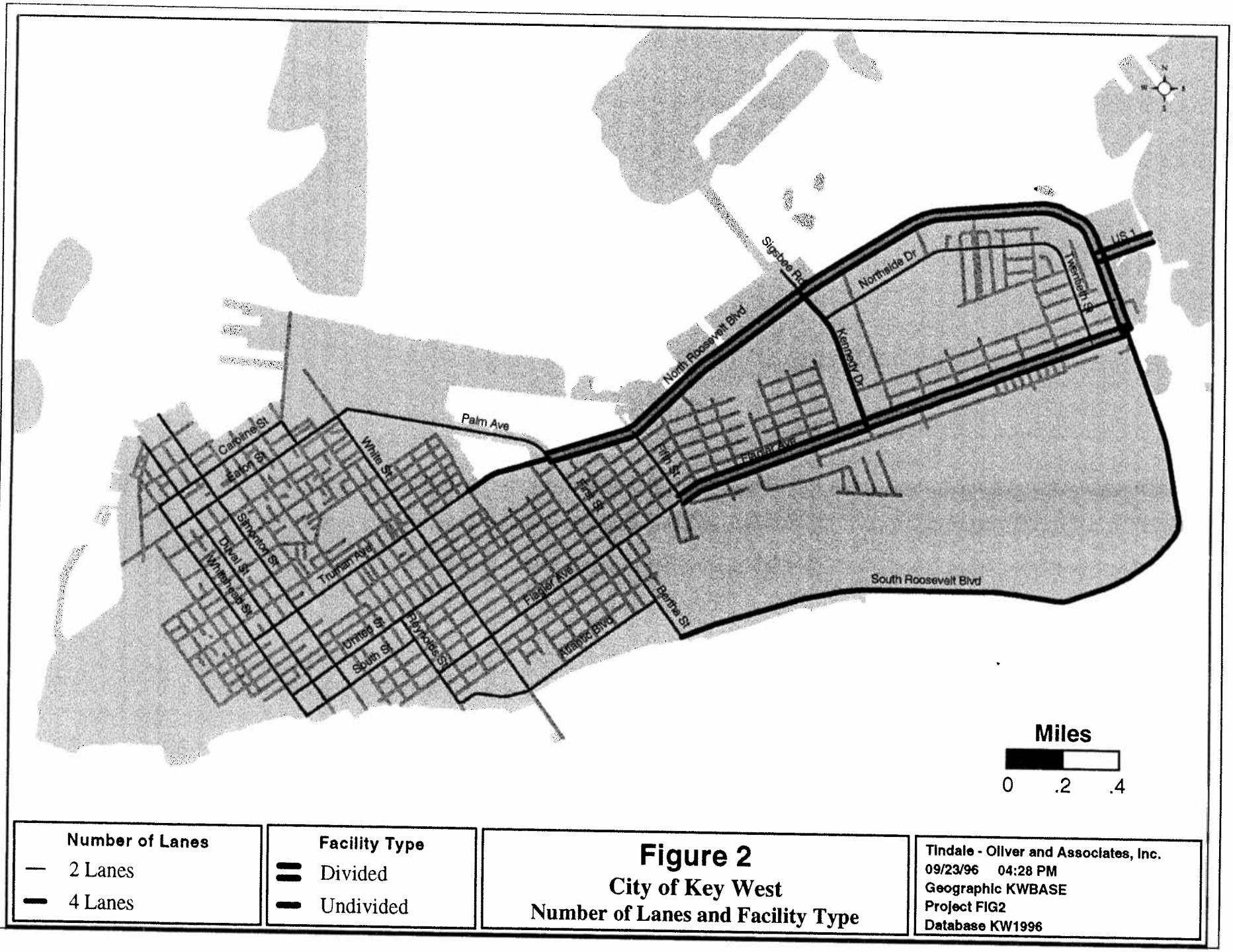
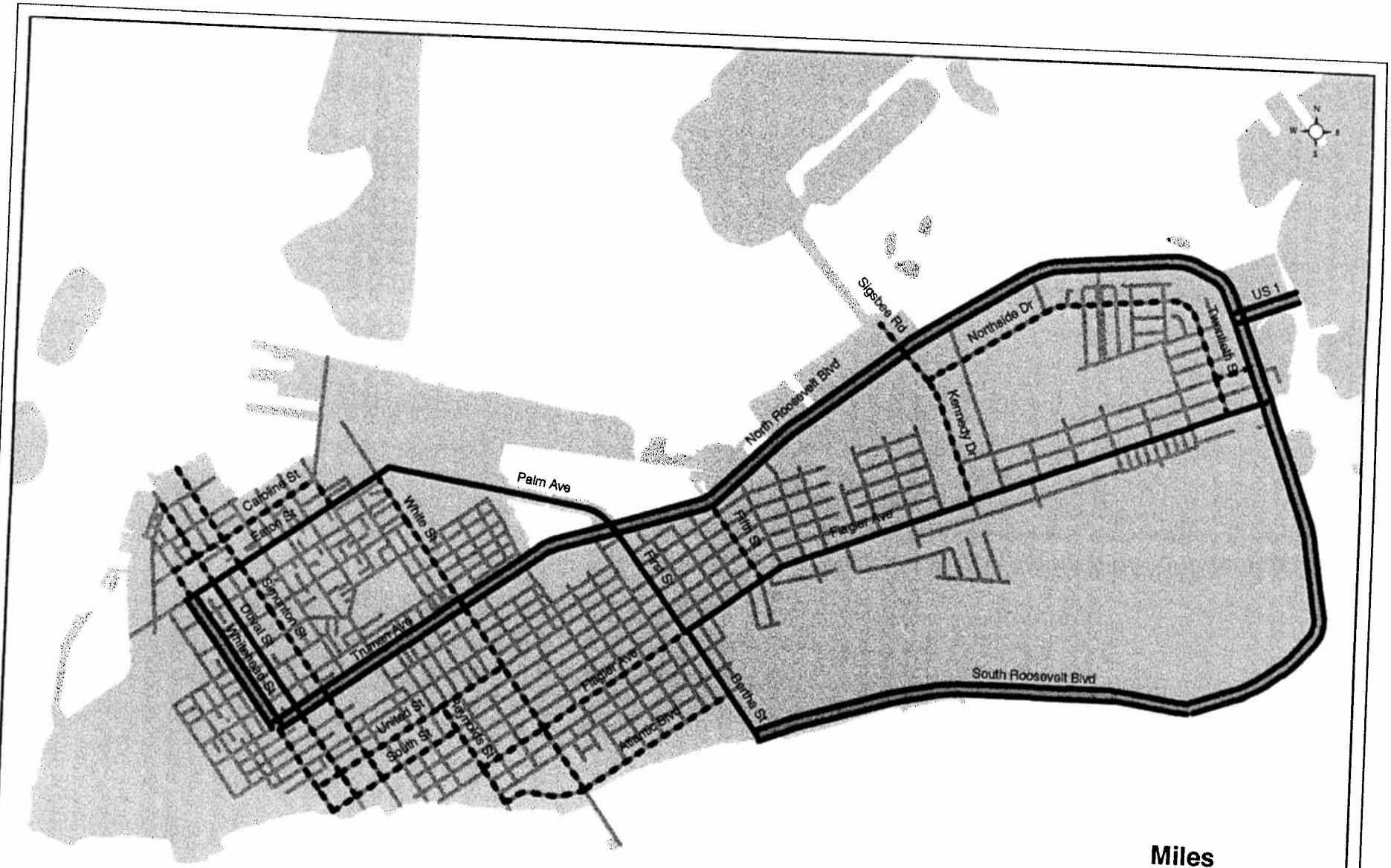


Figure 2
City of Key West
Number of Lanes and Facility Type

Tindale - Oliver and Associates, Inc.
09/23/96 04:28 PM
Geographic KWBASE
Project FIG2
Database KW1996



Jurisdictional Responsibility

- Key West
- County Road
- State Road

Figure 3

City of Key West

Jurisdictional Responsibility

Tindale - Oliver and Associates, Inc.
09/24/96 08:22 AM
Geographic KWBASE
Project FIG3
Database KW1996

- Collection of Turning Movement Counts, and
- Roadway Attribute Database Development

FDOT Traffic Reports

The Consultant coordinated traffic data collection with the FDOT District 6 staff. Concurrent with the data collection for the Truman Annex Traffic Diversion Study, the FDOT collected traffic count data on portions of North Roosevelt Boulevard, South Roosevelt Boulevard, and Flagler Avenue to support an upcoming preliminary Design and Engineering (PD&E) Study on North Roosevelt Boulevard. Coordination allowed the Consultant to collect traffic count data on roadways in the alternate network and prevented duplication of effort.

The FDOT produced a three volume report containing the results of the data collection activities to support the (PD&E) study (WPI 6119832, SP No. 99006-1635, May 1996). Information from the report was used extensively to calculate level of service conditions on State Roads in Key West as part of the Truman Annex Traffic Diversion Study Existing Conditions Analysis.

Machine Traffic Counts

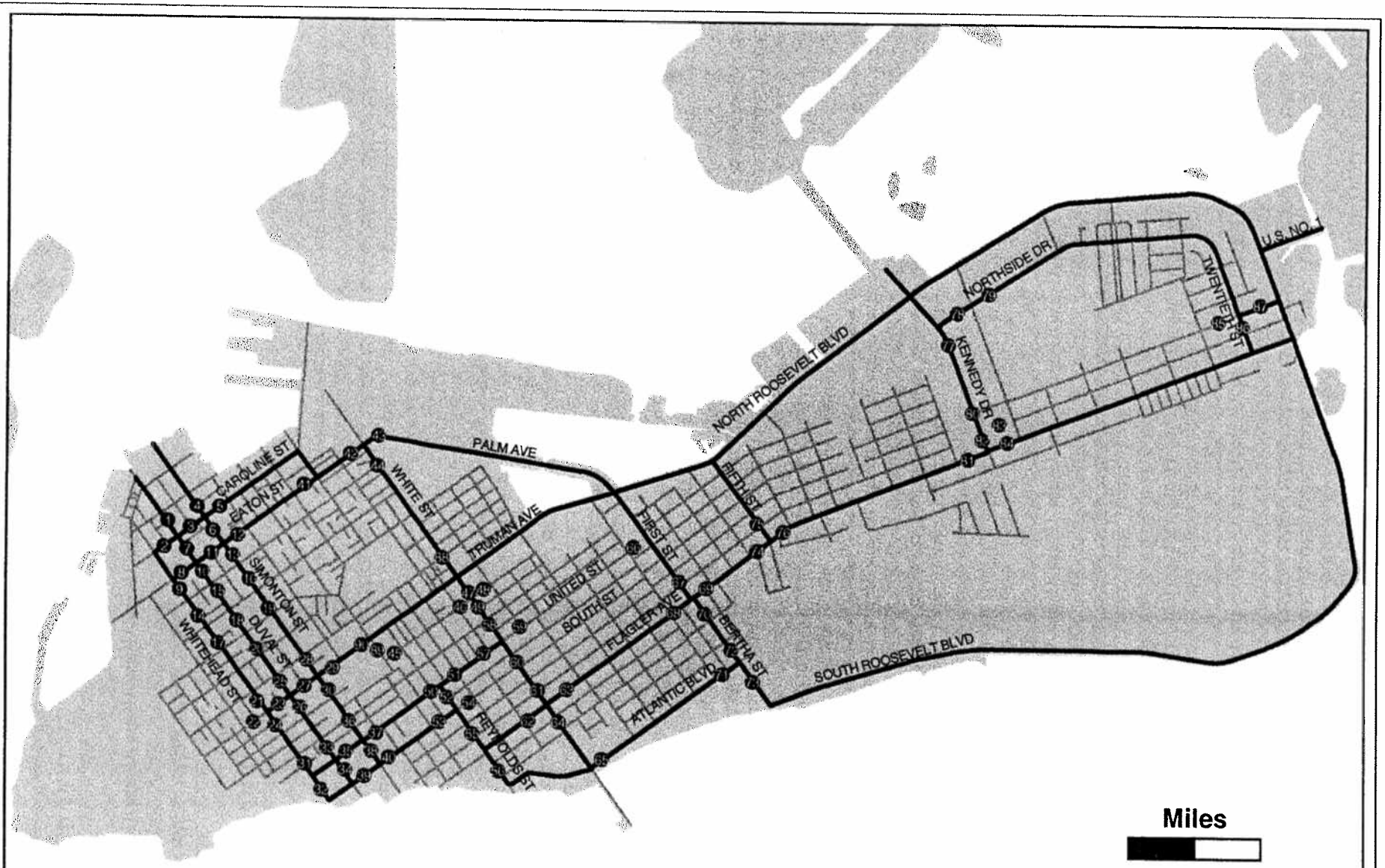
The Consultant. completed 90 machine traffic counts in Key West from April 22, 1996 to April 30, 1996. Machine Traffic Counts were conducted on both original network roads and alternate network roads. Further the Consultant reviewed and incorporated into a report, machine traffic counts performed for the Florida Department of Transportation, District 6. Table 2, Machine Traffic Counts, tabulates the Id, location, unadjusted volume, source, and the date which traffic counts were performed. This table includes counts from both Tindale - Oliver and Associates, Inc. and the Florida Department of Transportation. Figure 4, Study Network and Traffic Count Locations, illustrates the relative location of traffic counts performed.

Following the collection of traffic counts in the field, each count was reviewed to insure quality control. The data collected by traffic counts in the field were reviewed for accuracy and recounts were performed at locations which were determined to have produced erroneous results. Traffic

Table 2: Machine Traffic Counts

ID #	On Street	From & To	Date	ADT	Source
90001	Duval St	North of Caroline St	4/30/96	5654	TOA
90002	Caroline St	West of Duval St	4/30/96	2592	TOA
90003	Caroline St	West of Simonton St	4/30/96	3712	TOA
90004	Simonton St	North of Caroline St	4/30/96	7752	TOA
90005	Caroline St	East of Simonton St	4/30/96	4577	TOA
90006	Simonton St	North of Eaton St	4/23/96	8425	TOA
90007	Duval St	North of Eaton St	4/23/96	9563	TOA
90008	Eaton St	West of Duval St	4/23/96	5282	TOA
90009	Whitehead St	South of Eaton St	4/23/96	8515	TOA
90010	Duval St	South of Eaton St	4/23/96	10601	TOA
90011	Eaton St	West of Simonton St	4/23/96	11365	TOA
90012	Eaton St	East of Simonton St	4/23/96	10602	TOA
90013	Simonton St	South of Eaton St	4/23/96	7754	TOA
90014	Whitehead St	North of Southard St	4/24/96	6911	TOA
90015	Duval St	North of Southard St	4/30/96	11825	TOA
90017	Whitehead St	South of Southard St	4/23/96	6461	TOA
90018	Duval St	South of Southard St	4/23/96	13340	TOA
90019	Simonton St	South of Southard St	4/23/96	8287	TOA
90020	Duval St	South of Angela St	4/23/96	12557	TOA
90021	Whitehead St	North of Truman Ave	4/23/96	9187	TOA
90022	Truman Ave	West of Whitehead St	4/23/96	1688	TOA
90024	Whitehead St	South of Truman Ave	4/23/96	4894	TOA
90025	Duval St	North of Truman Ave	4/23/96	10115	TOA
90026	Duval St	South of Truman Ave	4/23/96	9963	TOA
90027	Truman Ave	West of Simonton St	4/23/96	5566	TOA
90028	Simonton St	North of Truman Ave	4/23/96	6795	TOA
90029	Truman Ave	East of Simonton St	4/23/96	6232	TOA
90030	Simonton St	South of Truman Ave	4/23/96	7592	TOA
90031	Whitehead St	North of United St	4/24/96	5166	TOA
90032	Whitehead St	South of United St	4/24/96	3473	TOA
90033	Duval St	North of United St	4/24/96	10725	TOA
90034	Duval St	South of United St	4/24/96	4756	TOA
90035	United St	West of Simonton St	4/24/96	4773	TOA
90036	Simonton St	North of United St	4/24/96	5867	TOA
90037	United St	East of Simonton St	4/24/96	7314	TOA
90038	Simonton St	South of United St	4/24/96	5026	TOA
90039	South St	West of Simonton St	4/24/96	7188	TOA
90040	South St	East of Simonton St	4/24/96	11371	TOA
90041	Eaton St	West of Grinnell St	4/24/96	11278	TOA
90042	Eaton St	West of White St	4/24/96	27057	TOA
90043	Palm Ave	East of White St	4/24/96	25968	TOA
90044	White St	South of Eaton/Palm	4/24/96	6949	TOA
90045	Virginia Ave	East of Windsor Lane	4/30/96	7476	TOA
90046	Virginia Ave	West of White St	4/30/96	7914	TOA
90047	White St	North of Virginia Ave	4/25/96	16629	TOA
90048	Virginia Ave	East of White St	4/25/96	7738	TOA
90049	White St	South of Virginia Ave	4/25/96	12049	TOA
90050	United St	West of Reynolds St	4/25/96	8984	TOA
90051	United St	East of Reynolds St	4/25/96	8572	TOA
90052	Reynolds St	South of United St	4/25/96	2585	TOA
90053	South St	West of Reynolds St	4/25/96	14019	TOA
90054	South St	East of Reynolds St	4/25/96	2692	TOA
90055	Reynolds St	North of Flagler Ave	4/25/96	5845	TOA
90056	Reynolds St	South of Flagler Ave	4/25/96	4462	TOA

ID #	On Street	From & To	Date	ADT	Source
90057	United St	West of White St	4/25/96	8262	TOA
90058	White St	North of United St	4/25/96	9250	TOA
90059	United St	East of White St	4/24/96	5325	TOA
90060	White St	South of United St	4/25/96	11735	TOA
90061	White St	North of Flagler Ave	4/25/96	6233	TOA
90062	Flagler Ave	West of White St	4/25/96	4295	TOA
90063	Flagler Ave	East of White St	4/25/96	6504	TOA
90064	White St	South of Flagler Ave	4/25/96	5122	TOA
90065	Atlantic Blvd	East of White St	4/25/96	7147	TOA
90066	United St	West of George St	4/24/96	2848	TOA
90067	Bertha St	North of Flagler Ave	4/29/96	9456	TOA
90068	Flagler Ave	West of Bertha St	4/29/96	19320	TOA
90069	Flagler Ave	East of Bertha St	4/29/96	21549	TOA
90070	Bertha St	South of Bertha St	4/29/96	8448	TOA
90071	Atlantic Blvd	West of Bertha St	4/29/96	6412	TOA
90072	Bertha St	North of Atlantic Blvd	4/29/96	6746	TOA
90073	Bertha St	South of Atlantic Blvd	4/29/96	11792	TOA
90074	Flagler Ave	West of Fifth St	4/29/96	19662	TOA
90075	Fifth St	North of Flagler Ave	4/29/96	4000	TOA
90076	Flagler Ave	East of Fifth St	4/29/96	21022	TOA
90077	Kennedy Dr	South of Northside Dr	4/29/96	9335	TOA
90078	Northside Dr	East of Kennedy Dr	4/30/96	11244	TOA
90079	Northside Dr	East of 14th St	4/30/96	7786	TOA
90081	Flagler Ave	West of Kennedy Dr	4/29/96	20016	TOA
90082	Kennedy Dr	North of Flagler Ave	4/29/96	8041	TOA
90083	Duck Ave	East of 14th St	4/29/96	4145	TOA
90084	Flagler Ave	East of Kennedy Dr	4/29/96	17444	TOA
90085	Duck Ave	West of 20th St	4/29/96	2742	TOA
90086	Northside Dr/20th St	North of Eagle Ave	4/29/96	862	TOA
90087	Duck Ave	West of South Roosevelt Blvd	4/29/96	4663	TOA
90088	White St	North of Truman Ave	4/29/96	9602	TOA
90089	Windsor Lane	South of Truman Ave	4/25/96	7422	TOA
90090	Truman Ave	West of Windsor Lane	4/25/96	6553	TOA
90118	Grinnell St	North of Caroline		8571	TOA
95000	North Roosevelt Blvd	West of First St		18309	FDOT
95010	North Roosevelt Blvd	East of First St		35737	FDOT
95020	North Roosevelt Blvd	East of Fifth St		42774	FDOT
95030	North Roosevelt Blvd	West of Kennedy Dr		35585	FDOT
95040	North Roosevelt Blvd	East of Kennedy Dr		33027	FDOT
95050	North Roosevelt Blvd	East of 14th St		34773	FDOT
95060	North Roosevelt Blvd	West of Toppino Dr		33278	FDOT
95070	North Roosevelt Blvd	East of Toppino Dr		34370	FDOT
95080	Roosevelt Blvd (N&S)	North of US 1		34604	FDOT
95090	Roosevelt Blvd (N&S)	South of US 1		19686	FDOT
95100	South Roosevelt Blvd	South of Flagler Ave		11508	FDOT
95110	South Roosevelt Blvd	West of Keywest Airport		12100	FDOT
95120	Flagler Ave	East of First St		16770	FDOT
95130	Flagler Ave	West of Kennedy Dr		17932	FDOT
95140	Flagler Ave	East of Kennedy Dr		13366	FDOT
95150	First St	North of Flagler Ave		7969	FDOT
95160	Fifth St	North of Flagler Ave		4597	FDOT
95170	Kennedy Dr	North of Flagler Ave		9442	FDOT
95180	Kennedy Dr	North of North Roosevelt Blvd		6814	FDOT
95190	US 1	East of Roosevelt Blvd (N&S)		43640	FDOT



Legend

- Roads
- City of Key West Road Network
- Machine Traffic Counts

Figure 4

City of Key West Study Network
Study Network Traffic Count Locations

Tindale - Oliver and Associates, Inc.
Date: 09/23/96 Time: 04:20 PM
Project: FIG4 . PRJ
Geographic: ROAD . AGF
Attribute: (NO ATT) . DBF

Count Summary Sheets were produced which contain a graphical display of traffic volumes during the twenty-four hour period when data was collected. All Traffic Count Summary Sheets reflect average daily traffic volumes and are not seasonally adjusted to produce an average annual daily traffic volume. Appendix B, Machine Traffic Counts, contains the Traffic Count Summary Sheets for traffic counts conducted by the Consultant for the Existing Conditions Analysis.

Additional machine traffic counts were conducted on and around the Duval Street corridor on Monday, April 22, 1996. On this date, portions of Duval Street were closed to automobile traffic during the daytime in observance of "Earth Day." The closure of Duval Street presented a unique opportunity to collect traffic count data in the surrounding area which could be utilized to the determine the effects of a closure of Duval Street on surrounding network roadways. Appendix C, Duval Street Corridor Earth Day Machine Traffic Counts, contains traffic counts summary sheets for traffic counts conducted within the Duval Street corridor on Monday, April 22, 1996. Analysis of this data will be included in the Truman Annex Traffic Diversion Study, Evaluation of Potential Diversion Routes.

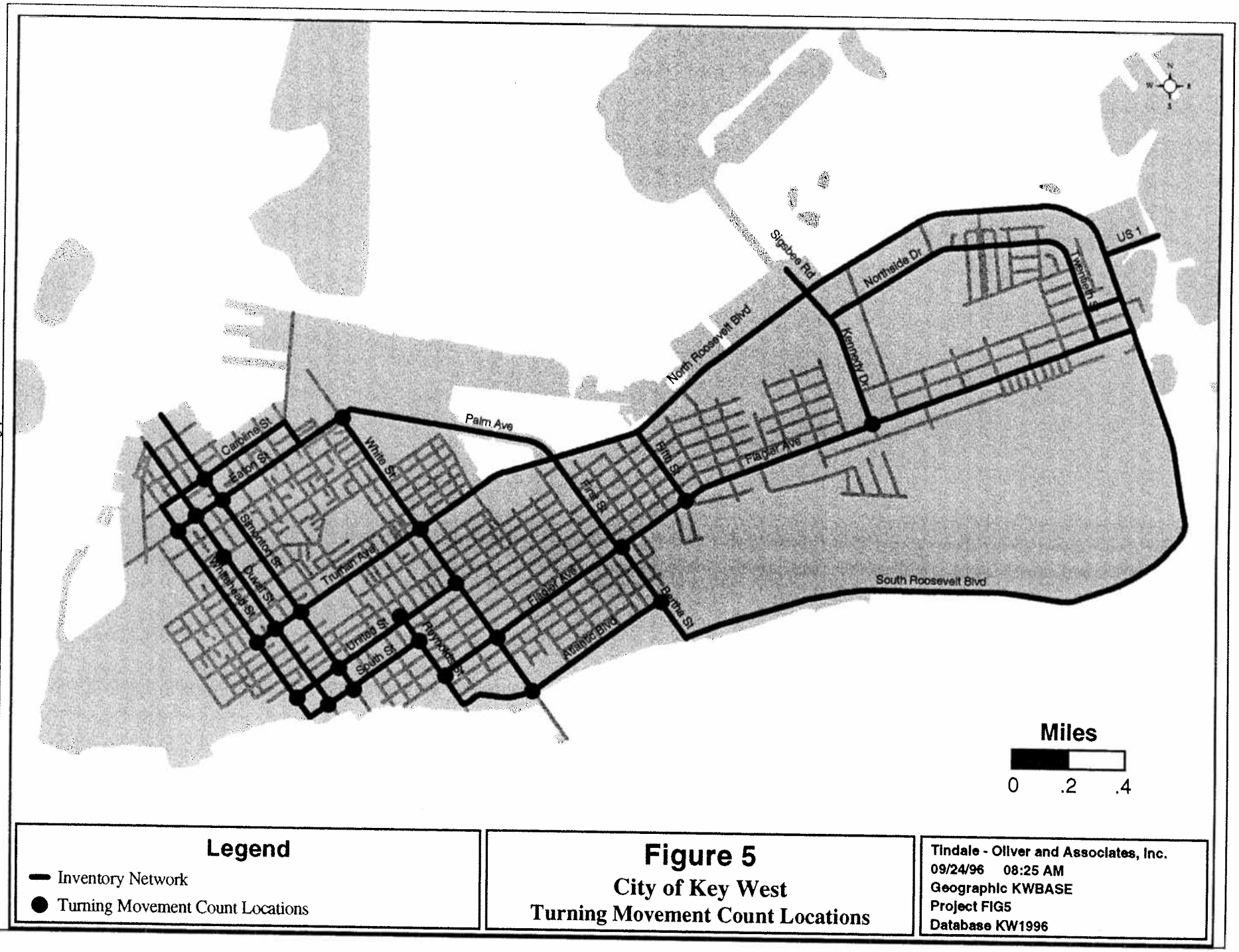
Turning Movement Counts

The Consultant performed 24 Turning Movement counts on both the original and alternate networks at major intersections. Table 3 tabulates the location and date of Turning Movement Counts performed by Consultant and counts conducted for the FDOT. Figure 5, Turning Movement Count Locations, illustrates the location where Turning Movement Counts were performed to support the Truman Annex Traffic Diversion Study. Turning Movement Counts were collected during the hours of 11:00 am to 2:00 pm and 4:00 pm to 6:00 pm.

Turning Movement counts were performed by local survey technicians trained by Tindale-Oliver and Associates, Inc. on April 22, 1996. Training covered issues including travel mode determination, the correct orientation of forms, and steps to assure quality counts. Turning Movement count data was collected for four different modes: Motor Vehicles, Mopeds and Motor Cycles, Bicycles, and Pedestrians. Data was aggregated to 15-minute intervals.

Table 3: Turning Movement Counts

Id	Intersection		LOS
	N-S Street	E-W Street	
1	Whitehead St	Eaton St	B
2	Duval St	Eaton St	B
3	Simonton St	Eaton St	B
4	Simonton St	Caroline St	B
5	Duval St	Southard St	B
7	Duval St	Truman Ave	B
8	Simonton St	Truman Ave	B
9	Simonton St	United St	B
10	Duval St	South St	B
11	Simonton St	South St	B
12	Reynolds St	United St	C
13	Reynolds St	South St	B
14	Reynolds St	Flagler Ave	B
15	White St	Eaton St	B
16	White St	Truman Ave	C
17	White St	United St	B
18	White St	Flagler Ave	B
19	White St	Atlantic Ave	B
20	Bertha / First	Flagler Ave	D
21	Fifth St	Flagler Ave	B
22	Atlantic Ave	Bertha St	B
23	Kennedy Dr	Flagler Ave	D
24	Whitehead St	United St	A
44	Eisenhower Dr	North Roosevelt Blvd	B
45	Palm Ave / 1st St	North Roosevelt Blvd	D
46	Overseas Market	North Roosevelt Blvd	B
47	Mac Millian (5th St)	North Roosevelt Blvd	B
48	Kennedy Dr	North Roosevelt Blvd	D
49	Roosevelt Blvd (N& S)	US 1	B
53	Flagler Ave	North Roosevelt Blvd	B



Legend

- Inventory Network
- Turning Movement Count Locations

Figure 5

City of Key West

Turning Movement Count Locations

Tindale - Oliver and Associates, Inc.
09/24/96 08:25 AM
Geographic KWBASE
Project FIG5
Database KW1996

Tindale-Oliver and Associates, Inc. developed a database system for utilizing raw turning movement data to produce reports necessary for level of service analysis. This database system includes the ability to input the data into the system in the same format as the forms utilized to collect the data in the field. Figure 6, TMC Data Collection Form, illustrates the form utilized to collect raw data. Once the raw data is inputted, the system is capable of producing reports which adjust data. Data is seasonally adjusted and adjusted by mode using procedures specified in the Highway Capacity Manual, Third Edition (1994). Two major reports were produced from the Turning Movement Count data: Turning Movement Count Summary and Turning Movement Count In/Out Report. Turning Movement Count Reports tabulate the detailed counts by movement and 15-minute time period. Appendix D, Turning Movement Count Summary Reports, contains the Turning Movement Count Summary reports for data collected as part of the Truman Annex Traffic Diversion Study. Turning Movement In/Out Report(s) provide a graphical relationship of turning movement volumes for specified periods of time. Appendix E, Turning Movement In/Out Reports, contains the Turning Movement In/Out Report(s) for the pm peak period.

Attribute Database Development

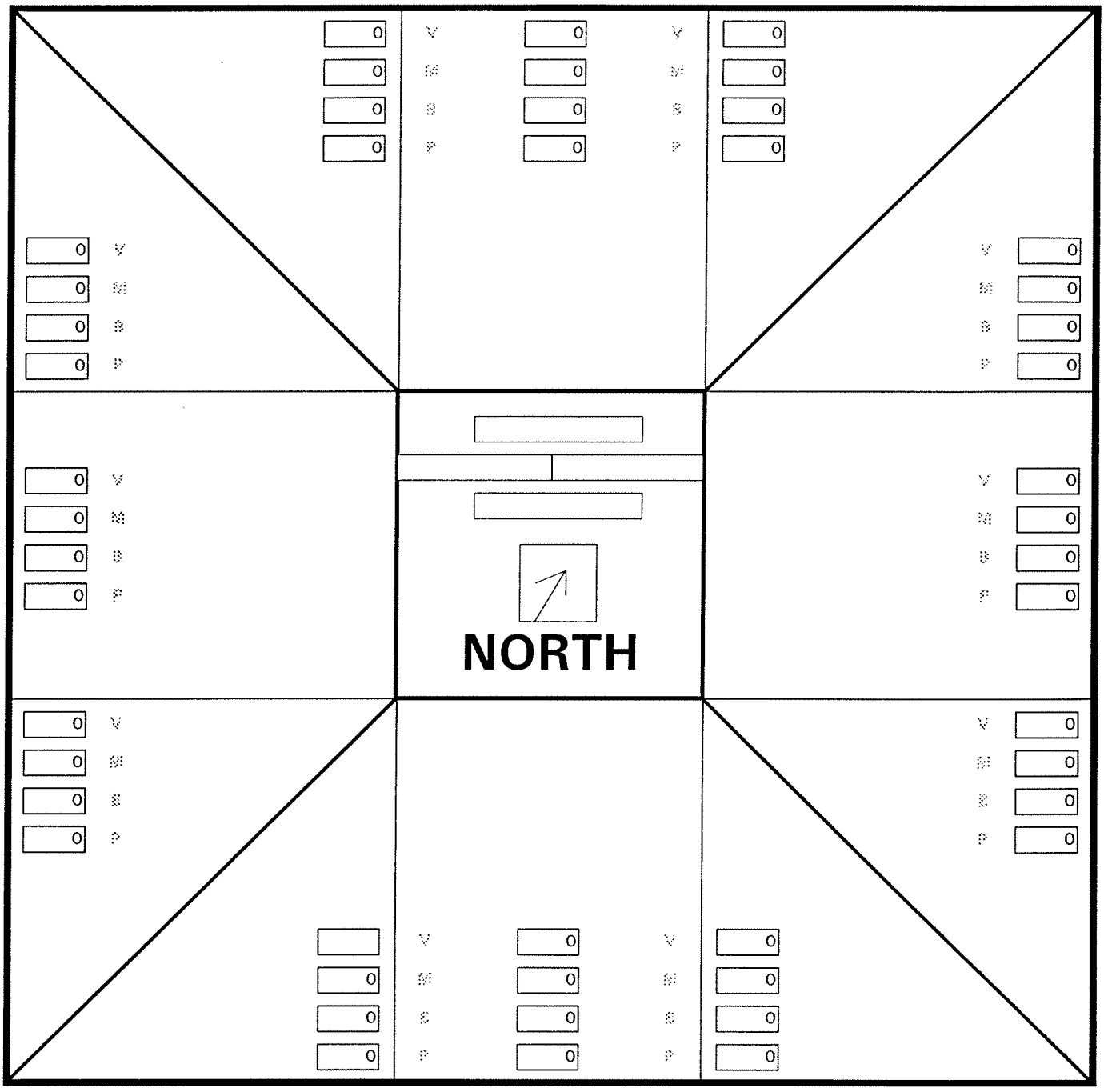
Tindale Oliver and Associates, Inc. created database files for use in the calculation of level of service. Most data for the database was derived from default values recommended in Florida's Level of Service Standards and Guidelines for Planning, 1995. This spreadsheet contains the variables needed for performing level of service calculations according to the methodology specified in Florida's Level of Service Standards and Guidelines for Planning, 1995.

The level of service software developed by Tindale Oliver and Associates, Inc. requires three databases in order to perform level of service calculations. These three databases are known as the Major Road Network (MRN), Base Year Conditions (BASE), and Analysis Year Conditions (AYYA); these databases are discussed below. Appendix F, Attribute Database Variables, contains a description of the variables which are utilized for level of service analysis.

Figure 6

TURNING MOVEMENT COUNT FORM

Location: Time Period



Location: 0 Date:

Max Queue Length: 0 Worksheet ID: 484

Weather:

Observer:

Data Entry

QC Check Off

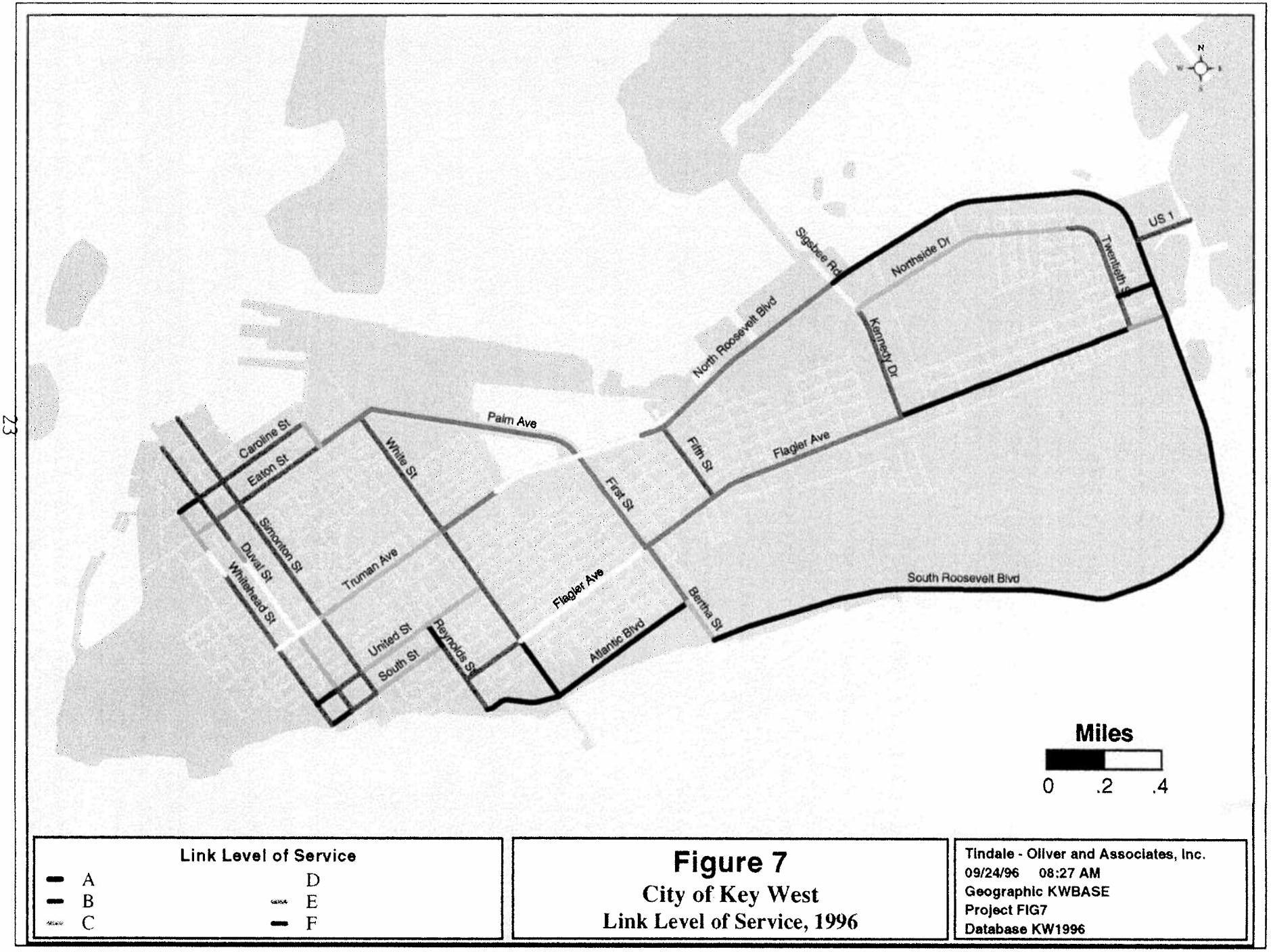
LEVEL OF SERVICE ANALYSIS

Utilizing data collected such as machine traffic counts and turning movement count data, Tindale-Oliver and Associates completed level of service analyses for the roadway network established for the City of Key West, Truman Annex Traffic Diversion Study. This analysis included both FDOT arterial level of service analysis and HCS intersection analysis. The HCS intersection analysis should be considered a more refined analysis of the operating conditions taking place at specific intersections, while the arterial analysis provides an insight into the overall operating conditions of segments of roadways which potentially consist of multiple independent intersections. Table 1, 1996 Existing Conditions Analysis (HCS) summarizes the results of the arterial level of service analysis for the road network in Key West, 1996 conditions. Likewise, Figure 7, Link Level of Service, illustrates the level of service for individual roadway links while Figure 8, Aggregated Segment Level of Service, 1996, graphically displays the arterial level of service for roadways on the City of Key West network. Additional tables and figures will be referred to in the analysis of specific links and/or intersections. Appendix G, HCS Intersection Level of Service Analysis, contains the HCS level of service analysis for specific intersections conducted as part of the Truman Annex Traffic Diversion Study. Figure 9, Intersection Level of Service, illustrates the overall intersection level of service for intersections which were analyzed using the HCS intersection level of service analysis software. Appendix H, Key West Bight HCS Level of Service Analysis contains the HCS level of service analysis conducted in 1995 for the Key West Bight CIAS.

In the sections below, the level of service for each roadway segment is described utilizing both arterial level of service analysis and HCS intersection level of service analysis procedures. Unless otherwise noted, all roadway descriptions follow the convention of west to east and south to north.

Caroline Street

Caroline Street is an East-West road located in the extreme northwestern portion of Key West and is a two lane undivided local collector street. The length of Caroline Street from Whitehead Street


Caroline St
Eaton St
Palm Ave
White St
Simonton St
Duval St
Truman Ave
Whitehead St
United St
South St
Reynolds St
First St
Flagler Ave
Atlantic Blvd
Fifth St
North Roosevelt Blvd
Stgsbee Rd
Northside Dr
Kennedy Dr
Flagler Ave
Twentieth St
US 1
South Roosevelt Blvd
Bertha St
Miles
0 .2 .4
Link Level of Service
A
B
C
D
E
F
Figure 7
City of Key West
Link Level of Service, 1996
Tindale - Oliver and Associates, Inc.
09/24/96 08:27 AM
Geographic KWBASE
Project FIG7
Database KW1996

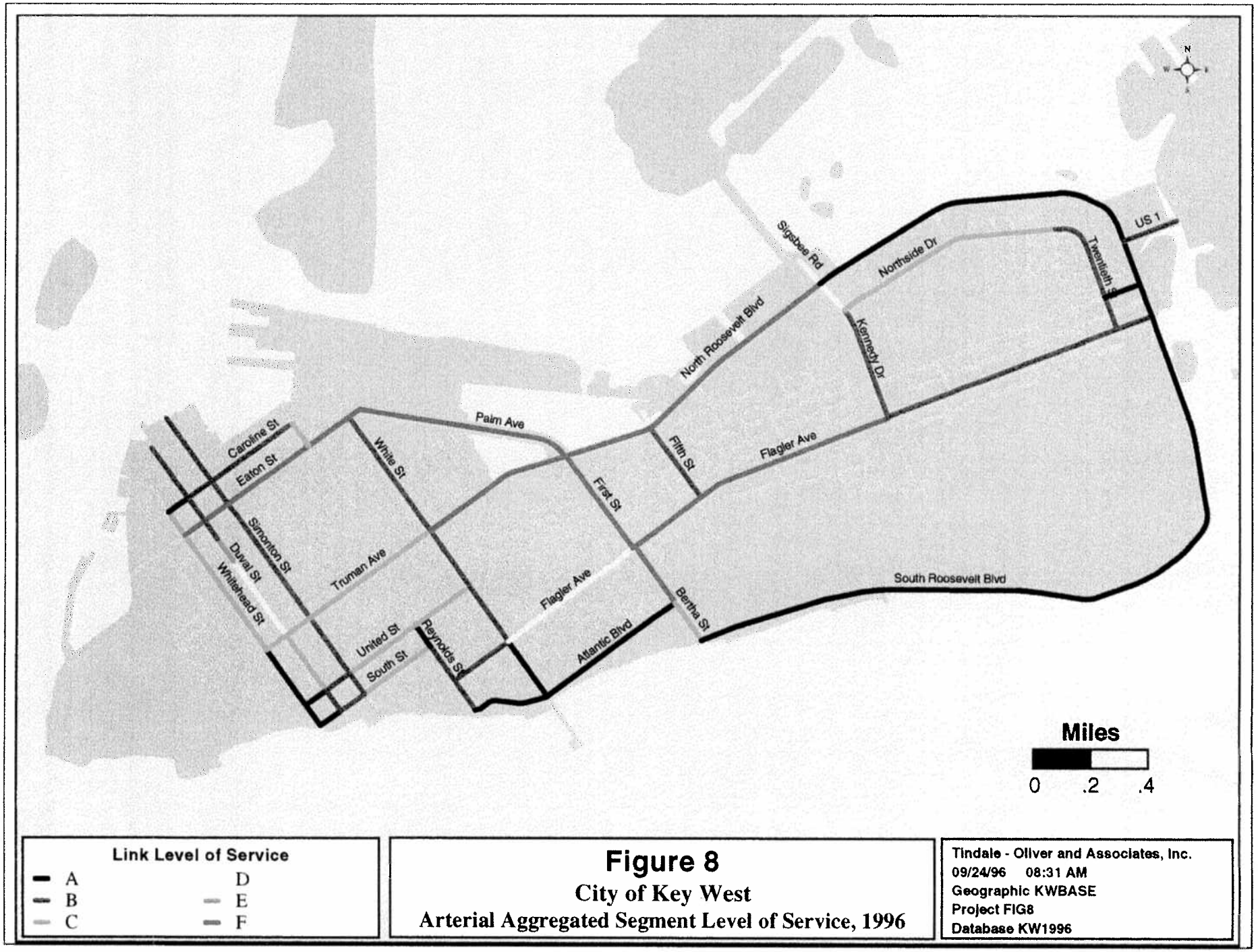
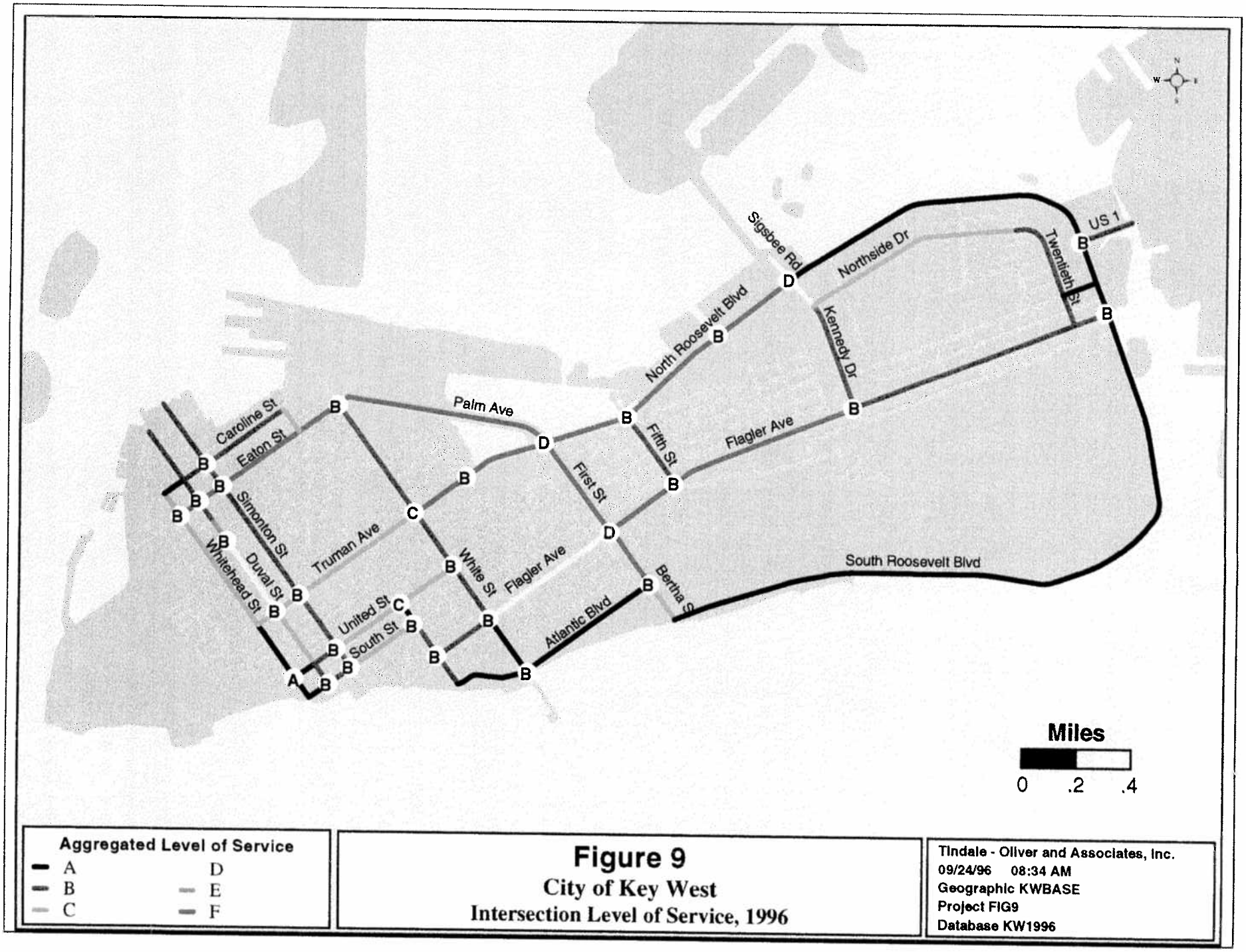


Figure 8
City of Key West
Arterial Aggregated Segment Level of Service, 1996

Tindale - Oliver and Associates, Inc.
09/24/96 08:31 AM
Geographic KWBASE
Project FIG8
Database KW1996


Sigsbee Rd
Northside Dr
US 1
Twentieth St
Kennedy Dr
North Roosevelt Blvd
Palm Ave
Fifth St
Flagler Ave
First St
Caroline St
Eaton St
Simonton St
Truman Ave
Duval St
Whitehead St
White St
Flagler Ave
United St
South St
Atlantic Blvd
Bertha St
South Roosevelt Blvd
Miles
0 .2 .4
Aggregated Level of Service
A
B
C
D
E
F
Figure 9
City of Key West
Intersection Level of Service, 1996
Tindale - Oliver and Associates, Inc.
09/24/96 08:34 AM
Geographic KWBASE
Project FIG9
Database KW1996

to Grinnell Street was analyzed as part of the Key West study network. Caroline Street was divided into three individual links. The link divisions and corresponding level of service variables are summarized in Table 1. Figure 7 illustrates the link level of service conditions. The first link analyzed on Caroline Street utilizing arterial level of services analysis procedures begins at Whitehead Street and proceeds to Duval Street and maintains a level of service A. The second link runs from Duval Street to Simonton Street and carries an arterial level of service of B. The final link analyzed runs from Simonton Street to Grinnell Street and carries an arterial level of service of B.

HCS intersection analysis was performed at specific intersections along the Caroline Street corridor. Figure 9 illustrates the overall intersection level of service conditions. At the intersection of Caroline Street and Simonton Street, HCS intersection level of service analysis (Appendix G-6) indicated level of service B conditions from both the westbound and eastbound approach. Additional HCS intersection level of service analysis was completed in 1995 as part of the Key West Bight CIAS performed by Tindale-Oliver and Associates (Appendix H). This 1995 HCS intersection level of service analysis indicated that the intersection of Caroline and Margaret maintains level of service A conditions (Appendix H 4-6). Likewise the intersection of Caroline and William also operates at level of service A (Appendix H 7-9).

Intersection level of service was poorer at the intersection of Caroline Street and Grinnell Streets (Appendix H 1-3). A level of service value of D is encountered on the Eastbound approach to the intersection of Caroline Street with Grinnell Street. This results in an overall intersection level of service C at the intersection. The level of service D condition on the Eastbound approach is the result of a disproportionately high right-turn volume. Upon review of the site during peak hour conditions, it has been determined that a level of service problem is not manifesting itself in terms of excessive delays by vehicles progressing through the intersection in the Eastbound approach.

Eaton Street

Eaton Street is an East-West two lane undivided arterial roadway located just south of Caroline Street. Eaton Street was analyzed from Whitehead Street to White Street. Table 1 summarizes the level of service conditions evaluated for Eaton Street while Figure 7 illustrates the link level of service and Figure 8 illustrates the aggregated segment level of service graphically. For analysis purposes Eaton Street was segmented into four individual links.

Arterial Analysis

The first link of Eaton Street evaluated progresses from Whitehead Street to Duval Street. Arterial level of service analysis indicates that the individual link carries a level of service C. The second link of Eaton Street runs from Duval Street to Simonton Street and carries an link level of service of F. The peak hour volume of this link is 960 vehicles while the service capacity is 736 vehicles and the physical capacity is 1078 vehicles. Thus while the link is exceeding the service capacity for a level of service D standard the roadway does function with a volume to physical capacity ratio of .89.

The third link analyzed on Eaton Street runs from Simonton Street to Grinnell Street and maintains an individual level of service of B. The fourth and final segment of Eaton Street proceeds from Grinnell Street to White Street and carries a level of service F. Both service and physical capacity is exceeded on the link of Eaton Street from Grinnell Street to White Street. All four Eaton Street links were aggregated into one segment to facilitate a level of service analysis for the corridor. The aggregated level of service of Eaton Street from Whitehead Street to White Street is F.

HCS Intersection Analysis

In addition to arterial level of service analysis, HCS intersection level of service analysis was also conducted on numerous intersections along the Eaton Street corridor. Figure 9 illustrates the overall level of service for intersections along Eaton Street. The first analysis was performed on the intersection of Eaton Street and Whitehead Street which resulted in a level of service A condition being reported for traffic moving east and west on Eaton Street (Appendix G-1). The second HCS

intersection level of service analysis indicated a level of service for approaches on both Eaton Street and Duval Street all carry a level of service D (Appendix G-4). The intersection of Simonton Street with Eaton Street also obtained a carries a level of service D condition for westbound and eastbound traffic on Eaton Street (Appendix G-5). Finally, the intersection of White Street and Eaton Street was analyzed (Appendix G-22). The resulting level of service value for traffic on Eaton Street was D for both the eastbound and westbound directions. Volumes utilized for HCS intersection analysis were not adjusted to reflect detour traffic conditions.

During the Key West Bight CIAS project, Tindale-Oliver and Associates conducted three HCS level of service analyses for intersections along the Eaton Street corridor. Appendix H contains the HCS worksheets produced for the Key West Bight project which provide additional insight for the Truman Annex Traffic Diversion Study. The Eaton Street intersections include Grinnell Street, Margaret Street, and William Street. For both Eaton and William (Appendix H13-15), and Eaton and Margaret (Appendix H16-18), level of service A conditions prevail for both the eastbound and westbound directions. At the intersection of Grinnell Street and Eaton Street, level of service B condition exists for eastbound and westbound traffic (Appendix H19). This level of service B condition at Grinnell Street is lower than the other intersections due to the additional delay which is encountered by vehicles traveling on Grinnell Street because of the signalized intersection. HCS analysis along the Eaton Street corridor indicates that even with the additional traffic volumes caused by the Truman Avenue detour, level of service B conditions exist as a minimum along all intersections along the Eaton Street corridor.

Detour Effects

During the collection of machine traffic counts in the City of Key West to support the Truman Annex Traffic Diversion Study, Truman Avenue was closed to through traffic in the vicinity of Windsor Lane to White Street. As a result of construction on Truman Avenue, detour conditions reallocated traffic on several roads in the City of Key West. Perhaps, none of the roads on the City of Key West roadway network were more impacted than the eastern portion of Eaton Street and the entire length of Palm Avenue. As discussed in the previous paragraph, Eaton Street, from Grinnell

Street to Whitehead Street, has a level of service F condition for the individual link. This individual link also causes the aggregated segment of Eaton Street, from Whitehead Street to White Street to calculate a failing level of service. The effect of the Truman Avenue detour was to add significant traffic to Eaton Street and Palm Avenue.

In order to determine the possible effect of the closure of Truman Avenue, a cutline analysis (an analysis of traffic volumes across two adjacent facilities) was conducted on the volumes of Truman Avenue and Eaton Avenue. Florida Department of Transportation 1994 average annual daily traffic counts along Truman Avenue and Palm Avenue in the detour area were used to develop a percentage of traffic using the Eaton and Palm Avenue corridor versus Truman Avenue. These percentages are 44.6% for Palm Avenue, and 55.4% for Truman Avenue. Next, using traffic counts collected as part of the Truman Annex Traffic Diversion Study, it was determined that 60.2% of the 1996 traffic was utilizing the Eaton Avenue, Palm Avenue corridor, while only 39.8% utilized the Truman Avenue corridor. Hence, during the Truman Avenue road closure, Eaton Street became a more significant into the Old Town area. To adjust for the detour situation, the total machine traffic count volume across the screenline was multiplied by the expected percentages for Palm Avenue and Truman Avenue. This number was then divided by the observed volumes to develop an adjustment factor. The resulting volumes on Eaton Street from Grinnell to White Street and the volumes on Palm Avenue were adjusted downward by 6,461 vehicles. Accordingly, the traffic volumes on Truman Avenue were increased by 6,461.

Utilizing the adjusted volumes for Eaton Street from Grinnell Street to White Street, the resulting link level of service value is C. Table 4, 1996 Existing Conditions (With Detour Adjustment), summarizes the adjusted volumes and associated changes in level of service for Eaton Street. Figure 10, Detour Adjusted Link Level of Service, 1996 and Figure 11, Detour Adjusted Aggregated LOS, 1996, illustrate their respective level of service conditions reflecting detour volume adjustments. As a result of the improved level of service conditions for the link of Eaton Street from Grinnell Street to White Street, the overall aggregated level of service for Eaton Street from Whitehead Street to White Street improved to level of service D condition.

Table 4

City of Key West
1996 Existing Conditions (With Detour Adjustment)

	Filenames	Filedates
Mrn:	G:\KEYWEST\1996\HCS\DATA\KWMRN.DBF	September 03, 1996
Analysis:	G:\KEYWEST\1996\HCS\DATA\DETOUR96.DBF	September 03, 1996

Date: 24-Sep-96
Time: 09:54:56

Id	Seg No.	On Street	From	To	Length / Art Class / Peak Vol	Lanes / Sat Flow / Vmt	Type / PHF / VHT	Perf_Std / %Turns / Psmult	CS1 / Area / SvcCap	CS2 / Spd Limit / PCap	CAFT / Arr Type / V:S CAP	No_sig / %No Pass / V:P CAP	D_Fac / Ctrl Type / Spd1	K100 / Sr Cyc Len / Los1	Fyvolm / Cyc Len / Agg Seg #	Source / Sr G:C / Agg Spd	AADT / G:C Ratio / Agg Los
1010010	0	Caroline St	Whitehead St	Duval St	0.08	2	U	D	90002	0	5	1	0.568	0.088		TOA	2514
					0	1700	0.910	0	1	25	3	0	3		30		0.700
					221	18	0.0	1.00	1903	2095	0.116	0.105	0.00	A	0	0.00	A
1010020	0	Caroline St	Duval St	Simonton St	0.10	2	U	D	90003	0	5	1	0.568	0.088		TOA	3601
					0	1700	0.910	0	1	25	3	0	3		60		0.330
					317	32	0.0	1.00	883	988	0.359	0.320	0.00	B	0	0.00	B
1010030	0	Caroline St	Simonton St	Grinnell St	0.34	2	U	D	90005	0	5	1	0.568	0.088		TOA	4440
					0	1700	0.910	0	1	25	3	0	3		60		0.330
					391	133	0.0	1.00	883	988	0.442	0.395	0.00	B	0	0.00	B
1020010	1	Eaton St	Whitehead St	Duval St	0.08	2	U	D	90008	0	2	1	0.568	0.088		TOA	5071
					3	1750	0.900	0	1	30	3	0	3	NoSig	30		0.700
					446	36	2.2	1.00	1812	2157	0.246	0.206	16.36	C	1	12.95	D
1020020	1	Eaton St	Duval St	Simonton St	0.10	2	U	D	90011	0	2	1	0.568	0.088		TOA	10910
					3	1750	0.900	0	1	30	3	0	3		60		0.350
					960	96	18.7	1.00	736	1078	1.304	0.890	5.13	F	1	12.95	D
1020030	1	Eaton St	Simonton St	Grinnell St	0.34	2	U	D	90012	90041	2	1	0.568	0.088		TOA	10502
					3	1750	0.870	0	1	30	3	0	3		60		0.533
					924	314	13.8	1.00	1586	1642	0.583	0.562	22.75	B	1	12.95	D
1020040	1	Eaton St	Grinnell St	White St	0.17	2	U	D	90042	0	2	1	0.568	0.088		TOA	19514
					3	1750	0.950	0	2	30	3	0	3		63		0.635
					1717	292	22.3	1.00	1887	1956	0.910	0.877	13.09	C	1	12.95	D
1030010	2	Palm Ave	N Roosevelt Blv	Eisenhower Dr	0.45	2	U	D	90043	0	2	1	0.568	0.088		TOA	18468
					3	1750	0.860	0	2	30	3	0	3	EST	60	EST	0.600
					1625	731	45.9	1.00	1849	1849	0.879	0.878	15.93	C	2	17.66	C
1030020	2	Palm Ave	Eisenhower Dr	White St	0.34	2	U	D	90043	0	2	1	0.568	0.088		TOA	18468
					3	1750	0.950	0	2	30	3	0	3		63		0.635
					1625	553	26.8	1.00	1956	1956	0.831	0.830	20.63	B	2	17.66	C

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
1040010	3	Truman Ave	Whitehead St	Duval St	0.08	2	U	D	90022	0	2	1	0.568	0.088		TOA	8081
					3	1750	0.870	0	1	30	3	0	3		54		0.400
					711	57	6.1	1.00	748	1232	0.951	0.577	9.34	D	3	11.86	D
1040020	3	Truman Ave	Duval St	Simonton St	0.10	2	U	D	90027	0	2	1	0.568	0.088		TOA	11804
					3	1750	0.910	0	1	30	3	0	3		70		0.460
					1039	104	11.4	1.00	1050	1417	0.989	0.733	9.12	D	3	11.86	D
1040030	3	Truman Ave	Simonton St	Windsor Ln	0.19	2	U	D	90029	90090	2	1	0.568	0.088		TOA	12598
					3	1750	0.900	0	1	30	3	0	3		72		0.486
					1109	211	15.0	1.00	1348	1497	0.822	0.740	14.07	C	3	11.86	D
1040040	3	Truman Ave	Windsor Ln	White St	0.32	2	U	D	90029	90090	2	2	0.568	0.088		TOA	12598
					3	1750	0.830	0	2	30	3	0	3		108		0.550
					1109	355	28.8	1.00	1339	1695	0.828	0.654	12.33	D	3	11.86	D
1040050	4	Truman Ave	White St	Eisenhower Dr	0.23	2	U	D	95000	0	2	1	0.568	0.088		FDOT	22939
					3	1750	0.860	0	2	30	3	0	2		74		0.398
					2019	464	885.6	1.00	1070	1226	1.887	1.646	0.52	F	4	1.10	F
1040060	4	Truman Ave	Eisenhower Dr	Palm Ave	0.31	4	U	D	95000	0	2	1	0.568	0.088		FDOT	22939
					3	1750	0.860	0	2	30	3	0	2		152		0.336
					2019	626	101.2	1.00	1827	2070	1.105	0.975	6.19	F	4	1.10	F
1050010	5	North Roosevelt Blvd	First St	Fourth St	0.23	4	D	D	95010	0	2	1	0.568	0.088		FDOT	32878
					2	1750	0.960	0	2	40	3	0	2		89		0.562
					2893	665	38.2	1.00	3232	3463	0.895	0.835	17.41	D	5	7.79	F
1050020	5	North Roosevelt Blvd	Fourth St	Fifth St	0.08	4	D	D	95010	0	2	1	0.568	0.088		FDOT	32878
					1	1750	0.910	0	2	45	3	0	2		89		0.562
					2893	231	26.7	1.00	2	3463	2.010	0.835	8.65	F	5	7.79	F
1050030	5	North Roosevelt Blvd	Fifth St	Overseas Mkt	0.50	4	D	D	95020	0	2	1	0.568	0.088		FDOT	39352
					1	1750	0.960	0	2	45	3	0	2		96		0.468
					3463	1731	244.3	1.00	2883	2884	1.201	1.200	7.09	F	5	7.79	F
1050040	5	North Roosevelt Blvd	Overseas Mkt	Kennedy Dr	0.27	4	D	D	95030	0	2	1	0.568	0.088		FDOT	32738
					1	1750	0.950	0	2	45	3	0	2		100		0.426
					2881	778	127.9	1.00	2103	2625	1.370	1.097	6.08	F	5	7.79	F
1050050	0	North Roosevelt Blvd	Kennedy Dr	US1	1.23	4	D	D	95040	95080	2	1	0.568	0.088		FDOT	30764
					1	1750	0.950	0	2	45	3	0	2		94		0.691
					2707	3330	80.7	1.00	4258	4258	0.636	0.635	41.26	A	0	41.26	A
1060010	0	United St	Whitehead St	Duval St	0.09	2	U	D	90035	0	5	1	0.568	0.088		TOA	4582
					0	1700	0.740	0	1	25	3	0	3	NoSig	30		0.700
					403	36	0.0	1.00	1547	2095	0.261	0.192	0.00	A	0	0.00	A
1060020	0	United St	Duval St	Simonton St	0.10	2	U	D	90035	0	5	0	0.568	0.088		TOA	4582
					0	1700	0.790	0	1	25	3	0	3		60		0.500
					403	40	0.0	1.00	1180	1496	0.342	0.269	0.00	B	0	0.00	B
1060030	0	United St	Simonton St	Reynolds St	0.28	2	U	D	90037	90050	4	0	0.568	0.088		TOA	7823
					3	1700	0.850	0	2	30	0	0	0	Nosig	0		0.000
					688	193	7.0	1.00	1449	2162	0.475	0.318	27.57	C	0	27.57	C

Id	Seg No.	On Street	From	To	Length Art Class Peak Vol	Lanes Sat Flow Vmt	Type PHF VHT	Perf_Std %Turns Psmult	CS1 Area SvcCap	CS2 Spd Limit PCap	CAFT Arr Type V:S CAP	No_sig %No Pass V:P CAP	D_Fac Ctrl Type Spd1	K100 Sr Cyc Len Los1	Fyvolm Cyc Len Agg Seg #	Source Sr G:C Agg Spd	AADT G:C Ratio Agg Los
1060040	0	United St	Reynolds St	White St	0.23	2	U	D	90051	90057	5	1	0.568	0.088		TOA	8080
					0	1700	0.850	0	2	25	3	0	3		64		0.390
					711	164	0.0	1.00	986	1167	0.721	0.609	0.00	C	0	0.00	C
1070010	0	South St	Whitehead St	Duval St	0.09	2	U	D	90039	0	5	1	0.568	0.088		TOA	6900
					0	1700	0.790	0	1	25	3	0	3	NoSig	15		0.700
					607	55	0.0	1.00	1652	2095	0.368	0.289	0.00	A	0	0.00	A
1070020	0	South St	Duval St	Simonton St	0.10	2	U	D	90039	0	5	0	0.568	0.088		TOA	6900
					0	1700	0.930	0	1	25	3	0	3		60		0.500
					607	61	0.0	1.00	1389	1496	0.437	0.405	0.00	B	0	0.00	B
1070030	0	South St	Simonton St	Reynolds St	0.28	2	U	D	90040	90053	5	1	0.568	0.088		TOA	12187
					0	1700	0.850	0	2	25	3	0	3		63		0.476
					1072	300	0.0	1.00	1209	1425	0.887	0.752	0.00	C	0	0.00	C
1080010	0	Flagler Ave	Reynolds St	White St	0.23	2	U	D	90062	0	5	1	0.568	0.088		TOA	4123
					3	1700	0.880	0	2	30	3	0	3		76		0.461
					363	83	0.0	1.00	1212	1380	0.299	0.263	0.00	B	0	0.00	B
1080020	0	Flagler Ave	White St	First St	0.54	2	U	D	90063	90068	5	1	0.568	0.088		TOA	12492
					0	1700	0.880	0	2	25	3	0	2		91		0.440
					1099	594	0.0	1.00	1134	1317	0.969	0.834	0.00	D	0	0.00	D
1080030	8	Flagler Ave	First St	Fifth St	0.29	2	U	D	90069	90074	2	1	0.568	0.088		TOA	19987
					2	1750	0.860	0	2	40	3	0	2		61		0.455
					1759	510	245.0	1.00	1186	1402	1.483	1.254	2.08	F	8	4.56	F
1080040	8	Flagler Ave	Fifth St	Kennedy Dr	0.71	4	D	D	90076	90081	2	1	0.568	0.088		TOA	19903
					1	1750	0.880	0	2	45	3	0	2		97		0.258
					1751	1244	140.0	1.00	1488	1590	1.177	1.101	8.89	F	8	4.56	F
1080050	9	Flagler Ave	Kennedy Dr	Twentieth St	0.85	4	D	D	95140	90084	3	0	0.568	0.088		BOTH	14609
					1	1750	0.880	0	2	45	0	0	0		0		0.000
					1286	1093	24.3	1.00	4284	5423	0.300	0.237	44.98	A	9	33.52	B
1080060	9	Flagler Ave	Twentieth St	S Roosevelt Blv	0.13	4	D	D	90084	0	2	1	0.568	0.088		TOA	16921
					1	1750	0.930	0	2	45	3	0	2		78		0.397
					1489	194	14.1	1.00	1	2446	2.010	0.608	13.76	E	9	33.52	B
1090010	0	Altantic Blvd	Reynolds St	White St	0.26	2	U	D	90056	0	5	1	0.568	0.088		TOA	4284
					0	1700	0.940	0	2	25	3	0	3	NoSig	15		0.700
					377	98	0.0	1.00	1966	2095	0.192	0.179	0.00	A	0	0.00	A
1090020	0	Atlantic Blvd	White St	Bertha St	0.54	2	U	D	90065	90071	5	1	0.568	0.088		TOA	6540
					0	1700	0.860	0	2	25	3	0	3	NoSig	30		0.700
					576	311	0.0	1.00	1798	2095	0.320	0.274	0.00	A	0	0.00	A
1100010	11	South Roosevelt Blvd	Bertha St	Airport	1.40	4	U	D	95110	0	3	0	0.568	0.088		FDOT	10890
					1	1750	0.860	0	2	45	0	0	0		0		0.000
					958	1342	29.8	1.00	3140	3974	0.305	0.241	45.03	A	11	40.74	A
1100020	11	South Roosevelt Blvd	Airport	Flagler Ave	1.24	4	U	D	95100	0	2	1	0.568	0.088		FDOT	10357
					1	1750	0.930	0	2	45	3	0	2		78		0.399
					911	1130	29.3	1.00	2459	2459	0.371	0.370	38.57	A	11	40.74	A

Id	Seg No.	On Street	From	To	Length Art Class Peak Vol	Lanes Sat Flow Vmt	Type PHF VHT	Perf_Std %Turns Psmult	CS1 Area SvcCap	CS2 Spd Limit PCap	CAFT Arr Type V:S CAP	No_sig %No Pass V:P CAP	D_Fac Ctrl Type Spd1	K100 Sr Cyc Len Los1	Fyvolm Cyc Len Agg Seg #	Source Sr G:C Agg Spd	AADT G:C Ratio Agg Los
1100040	11	South Roosevelt Blvd	Flagler Ave	US1	0.28	4	D	D	95090	0	2	1	0.568	0.088		FDOT	17717
					1	1750	0.950	0	2	45	3	0	2		94		1.000
					1559	437	12.3	1.00	5855	6162	0.266	0.253	35.53	A	11	40.74	A
1110010	0	Northside Dr	Kennedy Dr	Twentieth St	0.81	2	U	D	90078	90079	5	2	0.568	0.088		TOA	9230
					0	1700	0.910	0	2	25	3	0	3		78		0.386
					812	658	0.0	1.00	1029	1155	0.789	0.703	0.00	C	0	0.00	C
1120010	0	US1	Roosevelt Blvd	Cow Key Channel	0.20	4	D	D	95190	0	2	1	0.568	0.088		EST	40149
					1	1750	0.950	0	2	45	3	0	2		94	TOA	1.000
					3533	707	21.7	1.00	5855	6162	0.603	0.573	32.58	B	0	32.58	B
1130010	0	Duck Ave	Twentieth St	S Roosevelt Blv	0.13	2	U	D	90087	0	5	1	0.568	0.088		TOA	4523
					0	1700	0.910	0	2	25	3	0	3	NoSig	30		0.700
					398	52	0.0	1.00	1903	2095	0.209	0.189	0.00	A	0	0.00	A
2010010	13	Whitehead St	South St	United St	0.09	2	U	D	90032	0	4	0	0.568	0.088		TOA	3334
					3	1700	0.740	0	1	30	0	0	0		0		0.000
					293	26	0.9	1.00	1261	1883	0.233	0.155	28.89	B	13	29.52	A
2010020	13	Whitehead St	United St	Truman Ave	0.23	2	U	D	90024	90031	4	0	0.568	0.088		TOA	4829
					3	1700	0.740	0	1	30	0	0	0		0		0.000
					425	98	3.3	1.00	1261	1883	0.337	0.225	29.70	B	13	29.52	A
2010030	14	Whitehead St	Truman Ave	Southard St	0.31	2	U	D	90017	90021	2	1	0.568	0.088		TOA	7833
					3	1750	0.910	0	1	30	3	0	3		50		0.400
					689	214	10.1	1.00	1216	1232	0.567	0.559	21.19	B	14	15.69	C
2010040	14	Whitehead St	Southard St	Fleming St	0.09	2	U	D	90014	0	2	1	0.568	0.088		TOA	6635
					3	1750	0.910	0	1	30	3	0	3		73		0.411
					584	53	5.4	1.00	747	1266	0.782	0.461	9.81	D	14	15.69	C
2010050	14	Whitehead St	Fleming St	Eaton St	0.08	2	U	D	90009	0	2	1	0.568	0.088		TOA	8174
					3	1750	0.910	0	1	30	3	0	3		77		0.455
					719	58	6.4	1.00	718	1402	1.002	0.512	9.06	E	14	15.69	C
2010060	14	Whitehead St	Eaton St	Caroline St	0.10	2	U	D	90009	0	4	0	0.568	0.088		TOA	8174
					3	1700	0.910	0	1	30	0	0	0		0		0.000
					719	72	3.4	1.00	1551	2315	0.464	0.310	21.18	C	14	15.69	C
2020010	0	Duval St	South St	United St	0.09	2	U	D	90034	0	4	0	0.568	0.088		TOA	4566
					3	1700	0.790	0	1	30	0	0	0		0		0.000
					402	36	2.2	1.00	1347	2010	0.298	0.200	16.36	B	0	16.36	B
2020020	0	Duval St	United St	Truman Ave	0.23	2	U	D	90026	90033	5	1	0.568	0.088		TOA	9930
					0	1700	0.870	0	1	25	3	0	3		54		0.370
					874	201	0.0	1.00	962	1107	0.908	0.789	0.00	C	0	0.00	C
2020030	0	Duval St	Flagler Ave	Angela St	0.23	2	U	D	90020	90025	5	1	0.568	0.088		TOA	10883
					0	1700	0.870	0	1	25	3	0	3		54		0.370
					958	220	0.0	1.00	962	1107	0.996	0.865	0.00	D	0	0.00	D
2020040	0	Duval St	Angela St	Southard St	0.08	2	U	D	90018	0	5	1	0.568	0.088		TOA	12806
					0	1700	0.870	0	1	25	3	0	3		60		0.433
					1127	90	0.0	1.00	1125	1296	1.002	0.869	0.00	D	0	0.00	D

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
2020050	0	Duval St	Southard St	Fleming St	0.10	2	U	D	90015	0	5	1	0.568	0.088		TOA	11470
					0	1700	0.720	0	1	25	3	0	3		60		0.440
					1009	101	0.0	1.00	946	1317	1.067	0.766	0.00	E	0	0.00	E
2020060	0	Duval St	Fleming St	Eaton St	0.08	2	U	D	90010	0	5	1	0.568	0.088		TOA	10177
					0	1700	0.900	0	1	25	3	0	3		50		0.420
					896	72	0.0	1.00	1129	1257	0.793	0.712	0.00	B	0	0.00	B
2020070	0	Duval St	Eaton St	Caroline St	0.10	2	U	D	90007	0	5	1	0.568	0.088		TOA	9180
					0	1700	0.910	0	1	25	3	0	3		60		0.550
					808	81	0.0	1.00	1495	1646	0.540	0.490	0.00	B	0	0.00	B
2020080	0	Duval St	Caroline St	Green St.	0.09	2	U	D	90001	0	5	1	0.568	0.088		TOA	5484
					0	1700	0.910	0	1	25	3	0	3		60		0.500
					483	43	0.0	1.00	1359	1496	0.355	0.322	0.00	B	0	0.00	B
2020090	0	Duval St	Green St.	Front St.	0.09	2	U	D	90001	0	5	1	0.568	0.088		TOA	5484
					3	1700	0.910	0	1	30	3	0	3	Def	60		0.400
					483	43	0.0	1.00	1087	1197	0.444	0.403	0.00	B	0	0.00	B
2020100	0	Duval St	Green St	Wall St	0.04	2	U	D	90001	0	5	1	0.568	0.088		TOA	5484
					0	1700	0.950	0	1	25	3	0	3		60		0.500
					483	19	0.0	1.00	1419	1496	0.340	0.322	0.00	B	0	0.00	B
2030010	0	Simonton St	South St	United St	0.09	2	U	D	90038	0	5	1	0.568	0.088		TOA	4825
					0	1700	0.930	0	1	25	3	0	3		61		0.500
					425	38	0.0	1.00	1389	1496	0.306	0.284	0.00	B	0	0.00	B
2030020	0	Simonton St	United St	Truman Ave	0.23	2	U	D	90030	90036	5	1	0.568	0.088		TOA	6460
					0	1700	0.790	0	1	25	3	0	3		60		0.417
					568	131	0.0	1.00	984	1248	0.578	0.455	0.00	B	0	0.00	B
2030030	0	Simonton St	Truman Ave	Southard St	0.31	2	U	D	90019	90028	5	1	0.568	0.088		TOA	7239
					0	1700	0.910	0	1	25	3	0	3		70		0.463
					637	197	0.0	1.00	1259	1386	0.506	0.459	0.00	B	0	0.00	B
2030040	0	Simonton St	Southard St	Fleming St	0.10	2	U	D	90013	90019	5	1	0.568	0.088		TOA	7700
					0	1700	0.900	0	1	25	3	0	3		60		0.500
					678	68	0.0	1.00	1344	1496	0.504	0.453	0.00	B	0	0.00	B
2030050	0	Simonton St	Fleming St	Eaton St	0.08	2	U	D	90013	0	5	1	0.568	0.088		TOA	7444
					0	1700	0.900	0	1	25	3	0	3		60		0.500
					655	52	0.0	1.00	1344	1496	0.487	0.437	0.00	B	0	0.00	B
2030060	0	Simonton St	Eaton St	Caroline St	0.10	2	U	D	90006	0	5	1	0.568	0.088		TOA	8088
					0	1700	0.870	0	1	25	3	0	3		66		0.440
					712	71	0.0	1.00	1143	1317	0.623	0.540	0.00	B	0	0.00	B
2030070	0	Simonton St	Caroline St	Water	0.27	2	U	D	90004	0	5	1	0.568	0.088		TOA	7519
					0	1700	0.910	0	1	25	3	0	3		60		0.440
					662	179	0.0	1.00	1196	1317	0.553	0.502	0.00	B	0	0.00	B
2040010	0	Reynolds St	Atlantic Blvd	Flagler Ave	0.13	2	U	D	90056	0	4	0	0.568	0.088		TOA	4284
					3	1700	0.870	0	2	30	0	0	0		0		0.000
					377	49	2.3	1.00	1483	2213	0.254	0.170	21.30	B	0	21.30	B

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
2040020	0	Reynolds St	Flagler Ave	South St	0.14	2	U	D	90055	0	4	0	0.568	0.088		TOA	5611
					3	1700	0.870	0	2	30	0	0	0		0		0.000
					494	69	3.3	1.00	1483	2213	0.333	0.223	20.91	B	0	20.91	B
2040030	0	Reynolds St	South St	United St	0.09	2	U	D	90052	0	5	1	0.568	0.088		TOA	2482
					0	1700	0.850	0	2	25	3	0	3		30		0.700
					218	20	0.0	1.00	1777	2095	0.123	0.104	0.00	A	0	0.00	A
2050010	0	Grinnell St	Eaton St	Caroline St	0.10	2	U	D	90118	0	5	1	0.568	0.088		TOA	8742
					0	1700	0.900	0	1	25	3	0	3		60		0.333
					769	77	0.0	1.00	881	997	0.873	0.771	0.00	C	0	0.00	C
2060010	0	White St	Atlantic Blvd	Flagler Ave	0.23	2	U	D	90064	0	5	1	0.568	0.088		TOA	4917
					0	1700	0.940	0	2	25	3	0	3	NoSig	15		0.700
					433	100	0.0	1.00	1966	2095	0.220	0.206	0.00	A	0	0.00	A
2060020	0	White St	Flagler Ave	United St	0.23	2	U	D	90060	90061	5	1	0.568	0.088		TOA	8625
					0	1700	0.850	0	2	25	3	0	3		64		0.469
					759	175	0.0	1.00	1191	1404	0.637	0.540	0.00	B	0	0.00	B
2060030	0	White St	United St	Truman Ave	0.23	2	U	D	90049	90058	5	1	0.568	0.088		TOA	10224
					0	1700	0.830	0	2	25	3	0	3		108		0.550
					900	207	0.0	1.00	1358	1646	0.663	0.546	0.00	B	0	0.00	B
2060040	0	White St	Truman Ave	Southard St	0.31	2	U	D	90088	0	5	1	0.568	0.088		TOA	9314
					0	1700	0.830	0	2	25	3	0	3		108		0.550
					820	254	0.0	1.00	1358	1646	0.604	0.498	0.00	B	0	0.00	B
2060050	0	White St	Southard St	Eaton St	0.17	2	U	D	90044	0	5	1	0.568	0.088		TOA	6671
					0	1700	0.950	0	2	25	3	0	3	Est	60	Est	0.400
					587	100	0.0	1.00	1135	1197	0.517	0.490	0.00	B	0	0.00	B
2070010	0	First St	Flagler Ave	North Roosevelt	0.39	2	U	D	95150	90067	2	1	0.568	0.088		BOTH	8252
					2	1750	0.880	0	2	40	3	0	3		93		0.222
					726	283	48.9	1.00	555	684	1.308	1.061	5.79	F	0	5.79	F
2080010	0	Bertha St	S Roosevelt Blv	Atlantic Blvd	0.16	2	U	D	90073	0	4	0	0.568	0.088		TOA	11438
					2	1750	0.860	0	2	40	0	0	0		30	No Si	1.000
					1007	161	5.4	1.00	1509	2252	0.667	0.447	29.81	C	0	29.81	C
2080020	0	Bertha St	Atlantic Blvd	Flagler Ave	0.24	2	U	D	90070	90072	2	1	0.568	0.088		TOA	7369
					2	1750	0.880	0	2	40	3	0	3		93		0.222
					648	156	25.6	1.00	351	684	1.847	0.947	6.09	F	0	6.09	F
2090010	0	Fifth St	Flagler Ave	N Roosevelt Blv	0.30	2	U	D	95160	90075	5	1	0.568	0.088		BOTH	4055
					0	1700	0.910	0	2	25	3	0	3		63		0.317
					357	107	0.0	1.00	841	949	0.424	0.376	0.00	B	0	0.00	B
2100010	0	Kennedy Dr	Flagler Ave	Northside Dr	0.41	4	U	D	90077	90082	5	1	0.568	0.088		TOA	8427
					0	1700	0.880	0	2	25	3	0	3		78		0.513
					742	304	0.0	1.00	2697	3071	0.275	0.241	0.00	B	0	0.00	B
2100020	0	Kennedy Dr	Northside Dr	N Roosevelt Blv	0.12	4	U	D	95170	0	5	1	0.568	0.088		FDOT	8687
					0	1700	0.950	0	2	25	3	0	2		100		0.250
					764	92	0.0	1.00	1324	1496	0.577	0.510	0.00	D	0	0.00	D

Id	Seg No.	On Street	From	To	Length	Lanes	Type	Perf_Std.	CS1	CS2	CAFT	No_sig	D_Fac	K100	Fyvolm	Source	AADT
					Art Class	Sat Flow	PHF	%Turns	Area	Spd Limit	Arr Type	%No Pass	Ctrl Type	Sr Cyc Len	Cyc Len	Sr G:C	G:C Ratio
					Peak Vol	Vmt	VHT	Psmult	SvcCap	PCap	V:S CAP	V:P CAP	Spd1	Los1	Agg Seg #	Agg Spd	Agg Los
2100030	0	Sigsbee Rd	N Roosevelt Blv	Island	0.11	2	U	D	95180	0	5	1	0.568	0.088		EST	6269
					0	1700	0.950	0	2	25	3	0	2		100		0.293
					552	61	0.0	1.00	753	877	0.733	0.629	0.00	D	0	0.00	D
2110010	0	Twentieth St	Flagler Ave	Duck Ave	0.12	2	U	D	90086	0	5	1	0.568	0.088		TOA	836
					0	1700	0.910	0	2	25	3	0	3	NoSig	30		0.300
					74	9	0.0	1.00	815	898	0.090	0.082	0.00	B	0	0.00	B
2110020	0	Twentieth St	Duck Ave	Northside Dr	0.33	2	U	D	90086	0	4	0	0.568	0.088		TOA	836
					3	1700	0.910	0	2	30	0	0	0		0		0.000
					74	24	0.9	1.00	1551	2315	0.047	0.031	26.67	B	0	26.67	B

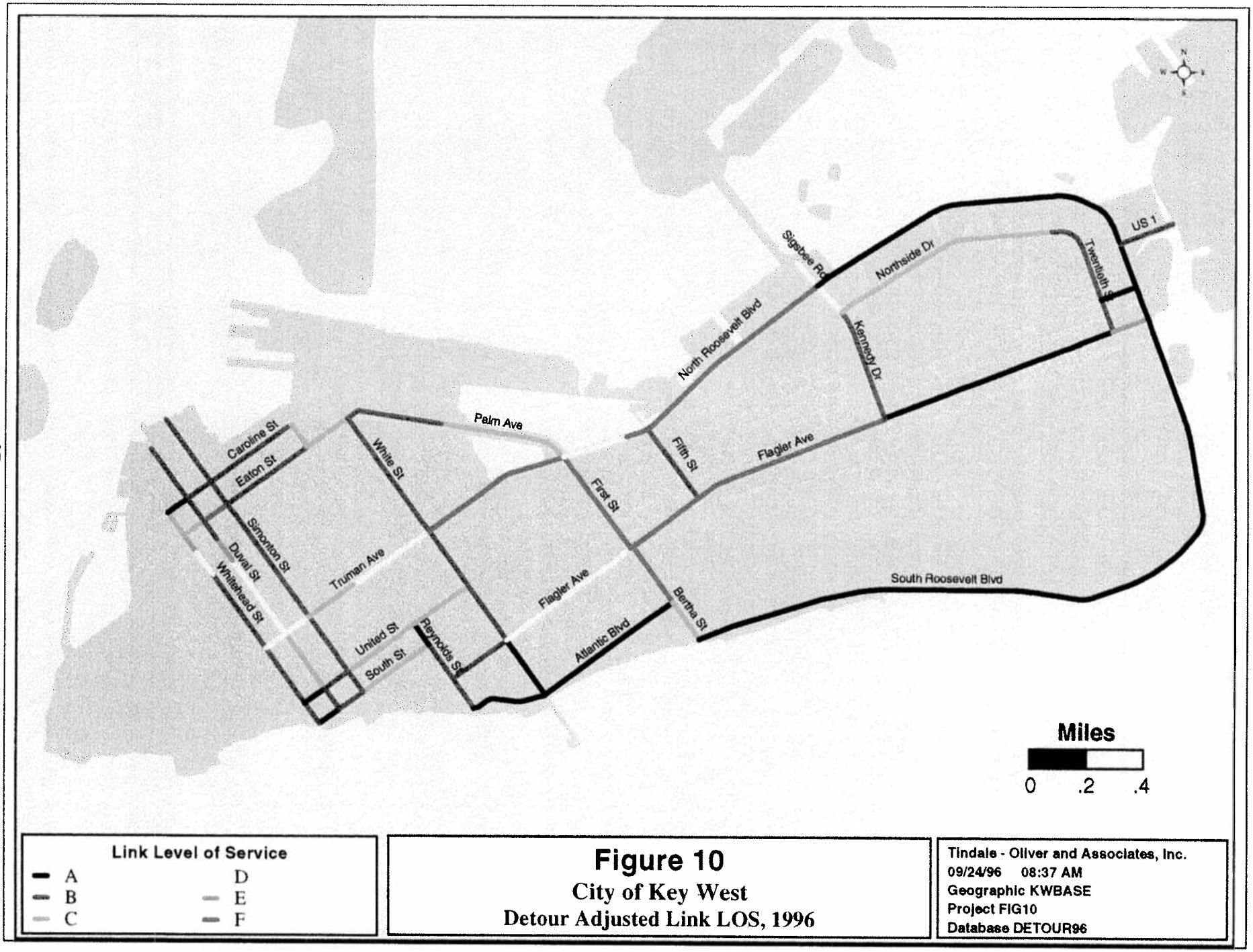
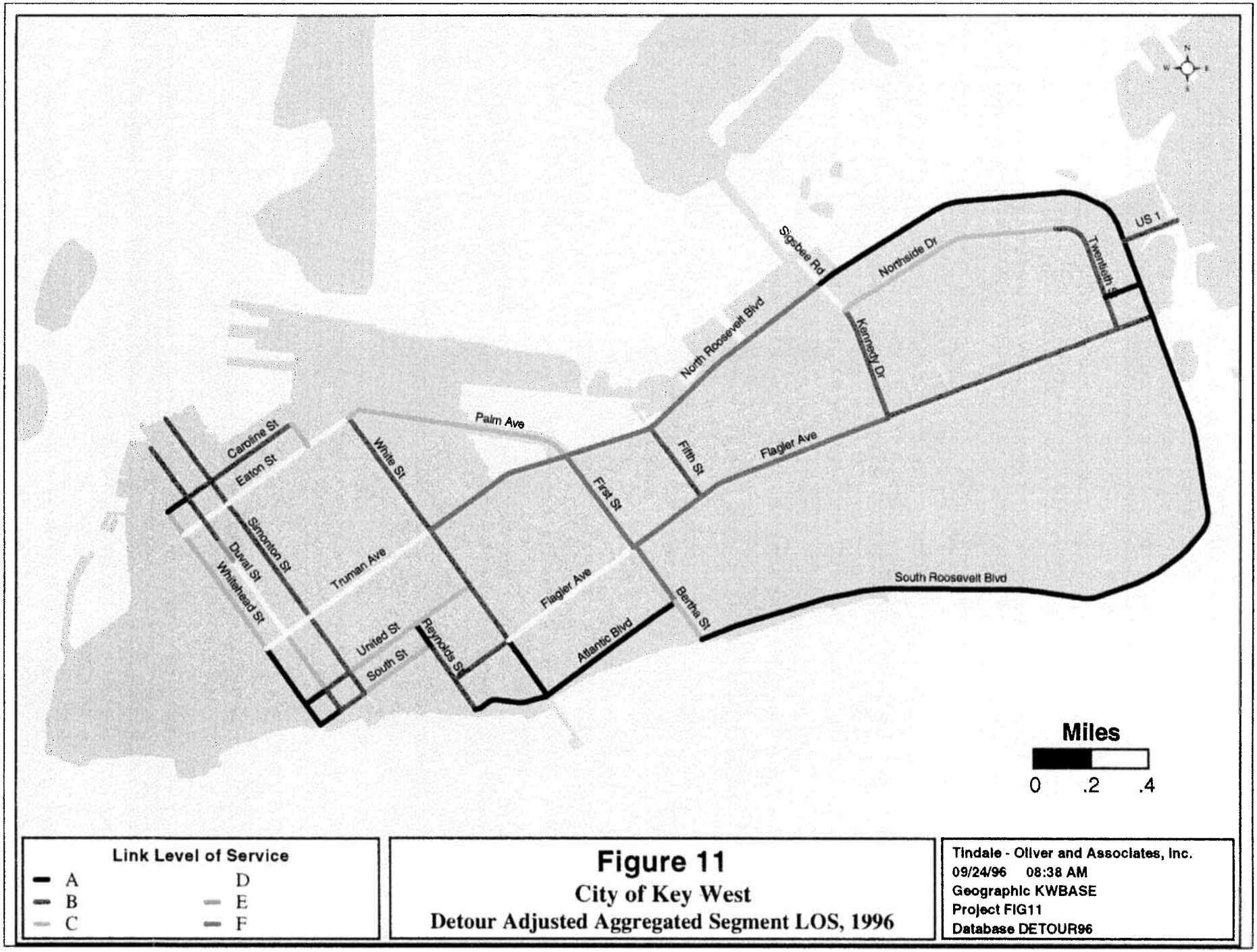


Figure 10

City of Key West

Detour Adjusted Link LOS, 1996

Tindale - Oliver and Associates, Inc.
09/24/96 08:37 AM
Geographic KWBASE
Project FIG10
Database DETOUR96


Caroline St
Eaton St
White St
Palm Ave
North Roosevelt Blvd
Sigsbee Rd
Northside Dr
Twentieth St
US 1
Kennedy Dr
Fifth St
Flagler Ave
First St
Simonton St
Duval St
Whitehead St
Truman Ave
United St
South St
Reynolds St
Flagler Ave
Atlantic Blvd
Bertha St
South Roosevelt Blvd
Miles
0 .2 .4
Link Level of Service
A
B
C
D
E
F
Figure 11
City of Key West
Detour Adjusted Aggregated Segment LOS, 1996
Tindale - Oliver and Associates, Inc.
09/24/96 08:38 AM
Geographic KWBASE
Project FIG11
Database DETOUR96

Palm Avenue

Palm Avenue is a two lane undivided arterial street which progresses from North Roosevelt Boulevard north-west to the road's continuation as Eaton Street at the intersection with White Street. Arterial level of service analysis conducted on Palm Avenue from White Street to North Roosevelt Boulevard is tabulated in Table 1. For analysis purposes, Palm Avenue was divided into two individual links. Figure 7 illustrates the link level of service conditions. The first link analyzed began at White Street and ends at Eisenhower Drive, and the second link continues on from Eisenhower Drive and progresses to North Roosevelt Boulevard. Arterial level of service analysis on both links resulted in a level of service F condition thus resulting in a level of service F for the aggregation of the two links. Figure 8 illustrates the aggregated level of service condition for Palm Avenue.

HCS Intersection Analysis

HCS intersection level of service analysis was completed on two intersections along the Palm Avenue corridor. Figure 9 illustrates the overall level of service for intersections analyzed as part of the Truman Annex Traffic Diversion study. The first intersection is located at Palm and White Street and analysis resulted in a approach level of service of B along with an overall intersection level of service of B (Appendix G-22). The second intersection analyzed was Palm Avenue at North Roosevelt Boulevard (Appendix G-39). The approach level of service for the southbound direction at this intersection carried a level of service D value. The overall level of service at Palm and North Roosevelt Boulevard also carried a level of service D. The intersection of Palm Avenue and North Roosevelt Boulevard is characterized by extremely heavy southbound left turn volumes supported by a single left turn lane. Volumes used in HCS level of service analysis of both intersections did not reflect adjusted volumes to account for the detour on Truman Avenue. Hence, level of service conditions could potentially be expected to improve at both of these intersections. However, it must be noted that the extremely large number of southbound left turns at the intersection of Palm Avenue and North Roosevelt Boulevard are expected to continue even after the re-opening of through traffic on Truman Avenue.

Detour Effects

As previously mentioned in the subsection for Eaton Street, Palm Avenue was adversely impacted by significant additional travel demand created by the detour on Truman Avenue. When Palm Avenue traffic volumes are adjusted to reflect the changes in travel behavior as documented in the subsection under Eaton Street, level of service conditions improve. Again, traffic volumes on Palm Avenue were reduced by 6,461 to reflect the impact of the Truman Avenue detour. After adjusting traffic volumes, arterial level of service analysis indicates that a level of service B condition exists on Palm Avenue on White Street to Eisenhower Drive. Table 4 summarizes the level of service condition after adjusting traffic volumes to mitigate the impacts of the Truman Avenue detour. The adjustment also caused a level of service improvement for the section of Palm Avenue from Eisenhower Drive to North Roosevelt Boulevard, resulting level of service of C. The aggregation of the two segments creating the analysis section of Palm Avenue, from White Street to North Roosevelt Boulevard, also results in a level of service C condition due to the adjusted traffic volumes. Figure 11 illustrates the aggregate level of service condition for Palm Avenue using detour adjusted volumes.

Truman Avenue

Truman Avenue, also known as State Road 5 or US 1, was analyzed from Whitehead Street to its continuation as North Roosevelt Boulevard at the intersection of Palm Avenue. Truman Avenue was divided into six individual links for link level of service analysis. Table 1 tabulates the link segmentation of Truman Avenue and level of service values. The first link analyzed on Truman Avenue, begins at Whitehead Street and proceeds one block east to Duval Street, carried a level of service D, utilizing arterial level of service procedures. Likewise, the second link, from Duval Street to Simonton Street, also carried a level of service D. Truman Avenue, from Whitehead Street to Windsor Lane, resulted in a level of service C condition as did Windsor Lane to White Street. It must be noted that the traffic volumes for Truman Avenue, from Windsor Lane to White Street were created by taking the volumes off of the main detour route on Virginia Street, since Truman Avenue was closed from Windsor Lane to White Street. All of the above links analyzed on Truman Avenue are two lane undivided State Road Arterials. These first four segments of Truman Avenue from

Whitehead Street to White Street were aggregated together into one analysis section, resulting in a level of service C.

The final two links of Truman Avenue were from White Street to Eisenhower Drive and Eisenhower Drive to Palm Avenue. Truman Avenue from White Street to Eisenhower drive is a two lane arterial which carried a link level of service of F. Truman Avenue from Eisenhower Drive to Palm Avenue transitions from a two lane arterial at the intersection of Eisenhower Street to a four lane arterial at Palm Avenue. The resulting level of service for this link was D. The two links of Truman Avenue, from White Street to Palm Avenue were aggregated together into one analysis section, which resulted in a level of service F condition being calculated.

HCS Intersection Analysis

HCS intersection level of service analysis was completed for five intersections along the Truman Avenue corridor. Figure 9 illustrates the overall intersection level of service for intersections analyzed along the Truman Avenue corridor. The first two intersections on Truman Avenue at Duval Street and Simonton Street both analyzed as having level of service B conditions on all approach volumes (Appendix G-8, G-9). The third intersection analyzed was Truman Avenue at White Street (Appendix G-23). Eastbound level of service approaching the intersection is level of service C. The westbound approach level of service was D for the intersection of Truman Avenue and White Street. HCS Intersection level of service analysis was also completed at the intersection of Truman Avenue and Eisenhower Drive (Appendix G-38). The level of service was D for both the east and westbound directions, with an overall intersection level of service B. Finally, for the intersection of Truman Avenue/North Roosevelt Boulevard and Palm Avenue/First Street, the overall level of service for the intersection was D (Appendix G-39). The eastbound approach on Truman Avenue with the intersection of Palm Avenue /First Street analyzed as a level of service E condition.

Detour Effects

As mentioned previously in both the Eaton Street and Palm Avenue sections, as well as the beginning of the Truman Avenue description, a detour was in place on Truman Avenue between Windsor Lane and White Street which significantly altered travel behavior. To adjust for the detour condition, the traffic volume on Truman Avenue was increased by 6,461 vehicles from Whitehead Street to Palm Avenue. Table 4 tabulates the adjusted traffic volumes utilized for links on Truman Avenue while. As a result of the aforementioned detour adjustments, the level of service values for most sections of Truman Avenue degraded, reflecting the impact of the additional vehicles. Hence, the first link of Truman Avenue from Whitehead Street to Duval Street obtained a level of service D. The link from Duval Street and Simonton Street also carried a level of service D condition. Truman Avenue, from Simonton Street to Windsor Lane, maintained a level of service C condition, while Truman Avenue, from Windsor Lane to White Street, carried a level of service D condition. The aggregated section of Truman Avenue from Whitehead Street to White Street analyzed as a level of service D condition, which is degraded from the non detour adjusted aggregated level of service value of C. Figure 11 illustrates the level of service for aggregated segments

The traffic volumes for the links in the second aggregated segment on Truman Avenue, from White Street to Palm Avenue, were also adjusted by 6,461 vehicles. The first link on Truman Avenue, from White Street to Eisenhower Drive, analyzed as a level of service F condition, as did Eisenhower Drive to Palm Avenue. Hence, the aggregated level of service for Truman Avenue, from White Street to Palm Avenue was F.

North Roosevelt Boulevard

North Roosevelt Boulevard is a four lane divided State Road arterial and is the most significant roadway in Key West in terms of traffic volumes. North Roosevelt Boulevard was analyzed using both arterial level of service analysis procedures and HCS intersection level of service analysis procedures from First Street/Palm Avenue to US 1. North Roosevelt Boulevard was divided into five roadway links for analysis purposes. Table 1 summarizes the link segmentation and level of service characteristics of North Roosevelt Boulevard while Figure 7 illustrates link level of service

conditions. The first link analyzed was from Palm Avenue / First Street to Forth Street and carried an individual level of service of D. The second link begins at Forth Street and ends at Fifth Street and correspondingly carried a level of service F. This segment of North Roosevelt Boulevard, from Forth Street to Fifth Street has an especially low service capacity ratio which is caused by the uncoordinated nature of the traffic signals and the very short distance between traffic signals which results in an especially poor level of service condition. The peak hour volume of 2,893 vehicles does not exceed the physical capacity of 3,463. Level of service for this link would improve substantially if the traffic signals were coordinated with one another.

The third link was from Fifth Street to the signal at Overseas Market. This link of North Roosevelt also analyzed as having a level of service F as did the link from the Overseas Market signal to Kennedy Drive. Peak hour volumes for both of these links exceeded their service and physical capacities. North Roosevelt Boulevard was aggregated into one analysis section from First Street to Kennedy Drive. The level of service for this aggregated segment of North Roosevelt Boulevard was F due to the poor level of service conditions of its component links.

Finally, North Roosevelt Boulevard, from Kennedy Drive to US 1, was analyzed. The level of service analysis for the link from Kennedy Drive to US 1 indicated A conditions prevail. This is due to the long length of the segment which is uninterrupted and the high G/C ratio for Southbound left turns at the intersection with US 1.

HCS intersection level of service analysis was completed for five intersections along the North Roosevelt Boulevard corridor. The first intersection analyzed was North Roosevelt Boulevard/Truman Avenue at Palm Avenue/First Street (Appendix G-39). The overall level of service for this intersection was D with a level of service E for the eastbound approach previously mentioned in the Truman Avenue section of this report. The westbound approach operates at a level of service C condition. The second intersection analyzed was North Roosevelt Boulevard and Fifth Street (Appendix G-41). Level of service B condition was calculated for both the eastbound and westbound directions for the intersection with Fifth Street. Similarly, an overall level of service B

condition was calculated for the intersection of North Roosevelt Boulevard and Overseas Market (Appendix G-40). Again, level of service B conditions existed for both the eastbound and westbound approaches.

HCS level of service analysis at the intersection of North Roosevelt Boulevard and Kennedy Drive was also conducted, resulting in an overall intersection level of service of D (Appendix G-42). Figure 9 illustrates the overall level of service for intersections along the North Roosevelt Boulevard corridor. The eastbound approach level of service at Kennedy and North Roosevelt Boulevard was D, while the westbound approach level of service was C. The degraded level of service condition at North Roosevelt and Kennedy Drive is the result of lower G/C ratios on North Roosevelt Boulevard than those of other sections of the North Roosevelt Boulevard. This is the result of higher cross-street volumes on Kennedy Drive not present at the other locations.

The final HCS intersection level of service analysis was completed for North Roosevelt Boulevard/ South Roosevelt Boulevard at US 1 (Appendix G-43). The level of service for through movements going southbound on North Roosevelt Boulevard through the intersection of US 1 was level of service A, while the left-turn level of service for southbound left turns was C. Overall, the southbound approach of North Roosevelt Boulevard at the intersection of US 1 operates at a level of service C condition.

United Street

United Street is a two-lane local collector roadway which was analyzed from Whitehead Street to White Street. This length of United Street was divided into four individual links for level of service purposes. Table 1 summarizes the link segmentation and level of service characteristics for United Street. Figure 7 illustrates link level of service conditions graphically. The first link analyzed on United Street runs from Whitehead Street to Duval Street and analysis resulted in a level of service A condition. The next link, from Duval Street to Simonton Street, indicated level of service B condition. United Street, from Simonton Street to Grinnell Street, recorded a level of service C,

while from Grinnell Street to White Street calculated a level of service C. Hence all links of United Street operate with acceptable level of service conditions.

HCS intersection level of service analysis was also conducted at four intersections along the United Street corridor. Figure 9 illustrates the overall level of service conditions for intersections along the United Street corridor. The first intersection at United Street and Whitehead Street had level of service A for vehicles moving eastbound through the intersection and level of service B for vehicles moving westbound through the intersection (Appendix G35-37). At the intersection of Simonton and United Streets, a level of service B condition was calculated for both eastbound and westbound traveling vehicles (Appendix G-10).

HCS level of service intersection analysis was also conducted at the intersection of United Street with Reynolds Street (Appendix G15-17). United Street is free-flowing though the intersection and is therefore not stopped at this intersection by either a stop sign or a traffic signal. The HCS software calculated a level of service A condition for the westbound left-turn movement. Since the westbound left turn movement is the only movement with the potential to encounter conflicts, it is the only level of service calculated at this intersection for United Street.

The last HCS level of service intersection analysis completed was at the intersection of United Street at White Street (Appendix G-24). United Street had a level of service condition of B for both the Eastbound and Westbound approaches.

South Street

Included in the City of Key West network was South Street from Whitehead Street to Reynolds Street. South Street is a local two-lane collector street. South Street was divided into three individual links for analysis. Table 1 includes a summary of the segmentation and level of service characteristics of South Street. Figure 7 illustrates the link level of service conditions for South Street.

The first link of South Street analyzed runs from Whitehead Street to Duval Street. Utilizing arterial level of service analysis procedures, a level of service A was calculated for this link. The second link, from Duval Street to Simonton Street calculated a level of service B condition while the third link, from Simonton Street to Reynolds Street calculated a level of service C condition.

Three of the primary intersections along the South Street corridor from Whitehead Street to Reynolds Street were analyzed utilizing HCS intersection level of service procedures. These intersections were South Street at Duval (Appendix G11-13), South Street at Simonton Street (Appendix G-14) and South Street at Reynolds Street (Appendix G-18). A level of service B condition was calculated for both eastbound and westbound approaches at each of the aforementioned intersections. Each of the three intersections also obtained an overall level of service B. Figure 9 illustrates the overall level of service for intersections along the South Street corridor.

Flagler Avenue

Flagler Avenue is a major east-west roadway which was analyzed from Reynolds Street to South Roosevelt Boulevard. Flagler Avenue, from Reynolds Street to Bertha Street/First Street is a two lane roadway classified as a local collector, while Flagler Avenue, from First Street/Bertha Street to South Roosevelt Boulevard is classified as a Monroe County arterial roadway. Overall, Flagler Avenue was divided into six individual links for arterial level of service analysis. Table 1 summarizes the link segmentation and level of service characteristics for Flagler Avenue while Figure 7 illustrates the link level of service conditions.

The first link of Flagler Avenue, from Reynolds Street to White Street is a two-lane collector roadway. Level of Service analysis indicated a level of service E condition. Secondly, Flagler Avenue from White Street to First Street is also a two-lane collector with a level of service E.

Flagler Avenue, from First Street to Fifth Street, begins the first link of arterial classification and is a two-lane undivided roadway. Flagler Avenue, from First Street to Fifth Street, has a level of service F. The link's peak hour volume of 1,759 exceeds both the service capacity of 1,186 and the

physical capacity of 1,402. Flagler Avenue, from Fifth Street to Kennedy, is a four-lane divided County arterial with a level of service F. Again both service and physical capacities are exceeded. Aggregated together, Flagler Avenue, from First Street to Kennedy Drive, carries a level of service F condition, due to the degraded level of service of both of its component links. Figure 8 illustrates the aggregated level of service on Flagler Avenue.

Flagler Avenue, from Kennedy Drive to Twentieth Street, has a level of service A condition for the link while Flagler Avenue, from Twentieth Street to South Roosevelt Boulevard carries a level of service E condition. The level of service E condition from Twentieth Street to South Roosevelt Boulevard is mainly a function of the shortness of the link. When Flagler Avenue, from Kennedy Drive to South Roosevelt Boulevard is aggregated into one analysis section, a level of service B is calculated. Again Figure 8 illustrates the aggregated level of service on Flagler Avenue.

A total of six HCS intersection level of service analyses were completed along the Flagler Avenue corridor. Figure 9 illustrates the overall intersection level of service for analyzed intersections along the Flagler Avenue corridor. The first intersection analyzed, Flagler Avenue at Reynolds Street, had a level of service A condition for the eastbound approach and a level of service E condition for the westbound approach (Appendix G19-21). The second intersection at Whitehead Street carries a level of service B condition for both the eastbound and westbound approaches with an overall intersection level of service B (Appendix G-25). At the intersection of Flagler Avenue and First Street/Bertha Street, an eastbound approach level of service C condition was calculated (Appendix G-29). A level of service for the westbound approach could not be determined because the physical capacity of the intersection was exceeded, therefore, resulting in a failing level of service for this approach. Furthermore, an overall level of service could not be calculated due to the exceedance of the physical capacity of the intersection.

Analysis of the intersection of Flagler Avenue and Fifth Street resulted in a level of service B condition for the approach from each direction, and hence, an overall level of service B condition (Appendix G-30). The next intersection analyzed was Flagler Avenue at Kennedy Drive (Appendix

G-34). At this intersection, a level of service D condition was calculated for the westbound direction. The level of service could not be calculated for the eastbound direction, since the peak hour volume exceeded the physical capacity of the intersection, and therefore, resulted in a level of service F condition for both the intersection approach and the overall intersection. The failure of the intersection was the result of a high G/C ratio allocated to the movements of Kennedy Drive. This resulted in a low G/C ratio for Flagler Avenue and accordingly, a decrease in the capacity of the approach through the intersection.

The final intersection analyzed on Flagler Avenue using HCS intersection analysis procedures was Flagler Avenue at US 1 (Appendix G-44). A level of service B condition was calculated for each approach for the Flagler Avenue and South Roosevelt Boulevard intersection. Hence, a level of service B condition exists at the intersection overall.

Atlantic Boulevard

Atlantic Boulevard is a local two-lane undivided collector street which was analyzed from Reynolds Street to Bertha Street. Atlantic Boulevard was divided into two links for analysis purposes. Table 1 summarizes the link segmentation and level of service characteristics for Atlantic Boulevard. Figure 7 illustrates the link level of service conditions. The first link analyzed, proceeds from Reynolds Street to White Street calculated level of service A, as did Atlantic Boulevard from White Street to Bertha Street.

Two HCS intersection level of service analyses were conducted along the Atlantic Boulevard corridor. Figure 9 illustrates the overall level of service for intersections along the Atlantic Boulevard corridor. The first intersection was Atlantic Boulevard and White Street. A level of service B condition was calculated for both the eastbound and westbound approaches on Atlantic Boulevard (Appendix G26-29). Likewise, the second intersection at Bertha and Atlantic Boulevard yielded a level of service B condition for both the eastbound and westbound movements on Atlantic Boulevard (Appendix G-31).

South Roosevelt Boulevard

South Roosevelt Boulevard is a major four-lane undivided State arterial, also known as SR A1A. The entire limits of South Roosevelt Boulevard from Bertha Street to US 1 were included in the analysis of network roads in the City of Key West. South Roosevelt Boulevard was divided into three individual links for level of service purposes. Table 1 summarizes the link segmentation and level of service characteristics of South Roosevelt Boulevard. Figure 7 illustrates the link level of service conditions. The first link of South Roosevelt Boulevard analyzed was from Bertha Street to the airport exit. A level of service A condition was calculated for this link. Likewise, the second link, from the airport exit to Flagler Avenue, also yielded a level of service A condition. Finally, South Roosevelt Boulevard, from Flagler Avenue to US 1, resulted in a level of service A condition. The aggregated level of service for the three links combined together was A. Figure 8 illustrates the aggregated level of service condition of South Roosevelt Boulevard.

Two HCS intersection level of service analyses were completed along the South Roosevelt corridor. The first analysis was the intersection of South Roosevelt Boulevard with Flagler Avenue (Appendix G-44). Level of service B condition was calculated for both the northbound and southbound movements on South Roosevelt Boulevard. Overall the intersection had an overall level of service B. Figure 9 illustrates the overall intersection level of service for analyzed intersections along South Roosevelt Boulevard. The second intersection analyzed is located north of the Flagler Avenue intersection is the intersection of South Roosevelt Boulevard with US 1 and North Roosevelt Boulevard (Appendix G-43). HCS level of service analysis determined that a level of service A condition existed for the free-flowing right turn movement going northbound from South Roosevelt Boulevard. Meanwhile, a level of service C condition existed for the northbound through movement from South Roosevelt Boulevard, resulting in an overall level of service A condition for northbound movements approaching the intersection.

Northside Drive

Northside Drive is a parallel route to North Roosevelt Boulevard and runs from its beginning at Kennedy Drive to its continuation as Twentieth Street. The segment of Northside Drive from

Kennedy Drive to Twentieth Street carries a level of service C condition. The level of service characteristics for the link on Northside Drive is reported in Table 1. Figure 7 illustrates the resulting link level of service.

US 1

US 1 from the Cow Key Channel to North and South Roosevelt Boulevard was analyzed. This link of US 1 is a four-lane divided state arterial. Arterial level of service analysis indicated a level of service B condition existed on US 1 from Roosevelt Boulevard to Cow Key Channel. Table 1 summarizes the level of service characteristics for US1 and Figure 7 illustrates the link level of service.

HCS intersection level of service analysis was also conducted at the intersection of US 1 and North and South Roosevelt Boulevards (Appendix G-43). The HCS software calculated an overall level of service C for the Westbound approach . The software also calculated a level of service A condition for the Westbound free-flowing right turn movement and a level of service E condition for the left turn movement.

Duck Ave

Duck Avenue is a two-lane collector road which was analyzed from Twentieth Street to South Roosevelt Boulevard. Arterial level of service analysis calculated level of service A for Duck Avenue, from Twentieth Street to South Roosevelt Boulevard. Table 1 includes a summary of the level of service characteristics for Duck Avenue. Figure 7 illustrates the link level of service conditions. No HCS intersection level of service analysis were conducted on this roadway.

Whitehead Street

Whitehead Street is a two-lane undivided local collector street from Caroline Street to Eaton Street and from Truman Avenue to South Street. From Eaton Street to Truman Avenue, Whitehead Street is a State two-lane undivided arterial, also known as US 1. Whitehead Street was divided into six

individual links for level of service purposes. Table 1 summarizes the link segmentation and level of service characteristics.

The first link analyzed on Whitehead Street runs from South Street north to United Street and has a level of service B condition. Figure 7 illustrates the link level of service conditions for Whitehead Street. Whitehead Street also has a level of service B from United Street to Truman Avenue. The aggregated level of service value for Whitehead Street from South Street to Truman Avenue is A. Figure 8 illustrates the aggregated level of service conditions for Whitehead Street.

Whitehead Street north of Truman Avenue becomes a two lane State arterial roadway. The first arterial analysis link on Whitehead Street is Truman Avenue to Southard Street, which has an individual link level of service E condition. The next link on Whitehead Street is Southard Street to Fleming Street, which has a level of service D condition, followed by Fleming Street to Eaton Street with a level of service E condition. The last individual link of Whitehead Street is Eaton Street to Caroline Street, which has a level of service C condition. The overall aggregated level of service for Whitehead Street from Truman Avenue to Caroline Street is level of service C.

Only two HCS level of service analyses were completed on the Whitehead Street corridor. Figure 9 illustrates the overall level of service conditions for intersections which were analyzed along the Whitehead Street corridor. The first analysis was conducted at United Street and Whitehead Street (Appendix G35-37). A level of service A condition was calculated for both the northbound and southbound directions on Whitehead Street. The second HCS intersection analysis location was the intersection of Whitehead Street with Eaton Street (Appendix G1-3). A level of service B condition was calculated for both north and southbound directions on Whitehead Street at this intersection.

Duval Street

Duval Street is a two-lane undivided collector roadway which was analyzed from South Street to Wall Street. Duval Street is a historic corridor which parallels Whitehead Street and is located one block to the east of Whitehead Street and one block west of Simonton Street. Duval Street was

divided into ten individual links for level of service calculation purposes. Table 1 tabulates the link segmentation and level of service characteristics. Figure 7 illustrates the link level of service conditions along the Duval Street corridor.

The first link analyzed on Duval Street was from South Street to United Street and had a level of service E condition. This link was followed by United Street to Truman Avenue with a level of service C. Duval Street, from Flagler Avenue to Angela Street and Angela Street to Southard Street both maintain a level of service D condition. These links are followed by Duval Street from Southard Street to Fleming Street which carries a level of service E condition. Each of the following five links on Duval Street maintain a level of service B condition as calculated utilizing arterial level of service analysis procedures: Fleming Street to Eaton Street; Eaton Street to Caroline Street; Caroline Street to Green Street; Green Street to Front Street; and, Green Street to Wall Street.

A total of four HCS intersection level of service analysis were completed along the Duval Street corridor. Figure 9 illustrates the overall level of service for each intersection analyzed along the Duval Street corridor. The first intersection analyzed was the intersection of Duval Street and South Street (Appendix G11-13). A level of service A condition was calculated for both northbound and southbound movements on Duval Street. The next intersection analyzed was Duval Street and Truman Avenue (Appendix G-8). A level of service B condition was calculated for each approach along Duval Street at this intersection, both northbound and southbound, with an overall level of service B condition at the intersection. Third, HCS intersection level of service analysis was completed for the intersection of Duval Street with Southard Street (Appendix G-7). Again, a level of service B condition was calculated for northbound and southbound directions on Duval Street, resulting in an overall intersection level of service B condition. Finally, an analysis was completed at the intersection of Duval Street and Eaton Street (Appendix G-4), again resulting in a level of service B condition for both north and southbound approaches.

While arterial level of service procedures indicate that a level of service D and E conditions exist on Duval Street north of Truman Avenue, HCS intersection level of service analysis indicates that

a level of service B condition exists at these signalized intersections. The lower level of service conditions at this intersection is a function of the number of signals and short signal spacing along the corridor and not the physical capacity of the intersection. While it may be possible to synchronize signals along this corridor to improve arterial level of service conditions by increasing vehicle speeds, this course of action is not prudent due to the high pedestrian volumes along the roadway.

Simonton Street

Simonton Street is a two-lane undivided local collector street which was analyzed from South Street to its terminus at the northwestern portion of the island. Simonton Street was divided into seven individual links. Table 1 summarizes the link segmentation and level of service characteristics along Simonton Street. Each of these links from South Street to the termination at the northwestern shore of the island calculated a level of service B condition for the entire corridor. Figure 7 illustrates the link level of service on Simonton Street.

Five HCS intersection level of service analyses were completed along the Simonton Street corridor. Figure 9 illustrates the overall level of service conditions for intersections analyzed on Simonton Street. Three analysis locations: Simonton and Southard (Appendix G-14), Simonton and United (Appendix G-10), and Simonton and Truman Avenue (Appendix G-9), calculated a level of service B condition for both northbound and southbound approaches. These intersections also had overall a level of service B conditions. The fourth intersection analyzed was located at Simonton Street and Eaton Street (Appendix G-5). A level of service B condition was calculated for the northbound approaches on Simonton Street while a level of service C condition was calculated for southbound approach. The overall intersection level of service for Simonton and Eaton Streets is E. The final intersection analysis performed along the Simonton Street corridor was at Simonton Street and Caroline Street (Appendix G-6). Again, both northbound and southbound approaches yielded a level of service B condition with an overall intersection level of service of B also.

Reynolds Street

Reynolds Street is an additional north/south two-lane undivided collector road which begins at Atlantic Boulevard and terminates at United Street. Reynolds Street was divided into three links for analysis purposes. Table 1 summarizes the link segmentation and level of service characteristics for Reynolds Street. The first link analyzed, Reynolds Street from Atlantic Boulevard to Flagler Avenue, yielded a level of service B condition as did the second link from Flagler Avenue to South Street. The final link, South Street to United Street yielded a level of service A condition. Figure 7 illustrates the link level of service conditions.

Three HCS level of service analyses were completed along the Reynolds Street corridor. Figure 9 illustrates the overall level of service for intersections analyzed on Reynolds Street. The first analysis occurred at the intersection of Reynolds Street and Flagler Avenue (Appendix G19-21). At this intersection, a level of service A condition exists for the northbound approaches on Reynolds Street and a level of service C condition exists for southbound approaches. The second HCS analysis was conducted at Reynolds Street and South Street (Appendix G-18). At this intersection, level of service B conditions exist for both northbound and southbound approaches. Finally, Reynolds Street terminates into United Street at a one-way stop controlled intersection (Appendix [12]). The level of service for northbound left and right turn movements from Reynolds Street is C.

Grinnell Street

Grinnell Street is a two-lane undivided local collector street. The portion of Grinnell Street included on the Key West analysis network runs from Eaton Street to Caroline Street and is approximately two blocks long. Table 1 includes a summary of the level of service characteristics for the aforementioned segment on Grinnell Street. The level of service for this section of Grinnell Street is C. Figure 7 illustrates the level of service condition on Grinnell Street.

Three HCS intersection level of service analyses were conducted as part of the Key West Bight CIAS study completed by Tindale-Oliver and Associates in 1995 (Appendix [KWB]). This analysis concluded that a level of service B condition exists for northbound and southbound volumes at the

signalized intersection with Eaton Street (Appendix H-19). Second, a level of service A condition exists northbound and southbound at James Street (Appendix H10-12). Finally, a level of service A condition exists northbound approaching the intersection with Caroline Street (Appendix H1-3).

White Street

White Street is a two-lane undivided local collector street which runs from Atlantic Boulevard to Eaton Street. For analysis purposes, White Street was segmented into five individual segments. Table 1 provides a summary of segmentation and level of service characteristics for White Street. The first segment analyzed on White Street runs from Atlantic Boulevard to Flagler Avenue obtained a level of service grade of A. All of the remaining segments obtained a level of service B; these segments include: Flagler Avenue to Untied Street; United Street to Truman Avenue; Truman Avenue to Southard Street; and, Southard Street to Eaton Street.

Five HCS intersection level of service analyses were completed along the White Street corridor. Figure 9 illustrates the overall level of service for intersections located on White Street. The first analysis at Atlantic Boulevard and White Street resulted in a level of service A condition for both northbound and southbound approaches (Appendix G26-28). The second intersection, Flagler Avenue at White Street, resulted in level of service B conditions on the northbound approach and level of service C conditions on the southbound approach (Appendix G-25). The overall level of service for this intersection is B. The next intersection located at Reynolds Street and White Street calculated level of service B condition for all approaches including northbound and southbound approaches (Appendix G-24). Again, the overall level of service for this intersection was B.

The fourth intersection analyzed using HCS intersection level of service procedures was the intersection of White Street with Truman Avenue (Appendix G-23). Both the northbound and southbound approaches obtained a level of service B. It must be noted, however, that this intersection is located at the focal point of the existing detour at the time when data was collected. Therefore, caution should be utilized in making any determination based on the level of service calculated at this intersection.

The final intersection analyzed on the White Street corridor was the intersection of White Street with Eaton Street/Palm Avenue (Appendix G-22). At this intersection, a level of service C condition was calculated for the northbound approach. Further a level of service B condition was calculated overall. This intersection is also located within the detour route diverting traffic from Truman Avenue. Turning movement count data used for the HCS intersection level of service analysis was not adjusted to correct for the detour condition and hence caution should be taken when using this analysis.

Bertha Street/First Street

Bertha Street and First Street were combined into one corridor due to their alignment which provides continuity of travel between the terminus of South Roosevelt Boulevard to the extension of the roadway to the north via Palm Avenue leading to Eaton Street. Both Bertha Street and First Street are County arterials. For analysis purposes, Bertha Street was segmented into two segments, while First Street remained unsegmented. Table 1 summarizes the link segmentation and level of service characteristics for both Bertha Street and First Street. Figure 7 illustrates a the link level of service conditions.

Both Bertha Street and First Street were analyzed using arterial level of service procedures. The first segment of Bertha Street from South Roosevelt Boulevard to Atlantic Boulevard obtained a level of service C. The second and final segment of Bertha Street from Atlantic Boulevard to Flagler Avenue scored a level of service F condition. It must be noted, however, that for Bertha Street from Atlantic Boulevard to Flagler Avenue, the peak hour volume of 648 was less than the physical capacity of the roadway which was 685. The low service capacity of 351 is due to the low g/C ratio of .222 at the intersection of Flagler Avenue.

First Street was also analyzed using arterial level of service procedures. The only link of First Street, Flagler Avenue to North Roosevelt Boulevard, obtained a level of service F condition. The peak hour volume of 726 was greater than the service capacity of 555 and the physical capacity of 684. As with the link of Bertha Street from Atlantic Boulevard to Flagler Avenue, First Street's

Southbound approach encounters a very low G/C ratio of .222 which significantly reduces both physical and service capacities.

A total of three HCS intersection level of service analyses were completed along the Bertha Street/First Street corridor. Figure 9 illustrates overall level of service conditions for intersections analyzed along the Bertha Street/First Street corridor. The first intersection analyzed was the intersection of Bertha Street with Atlantic Boulevard (Appendix G31-33). A level of service A condition was calculated for both the northbound and southbound approaches. The second intersection analyzed was Bertha Street/First Street with Flagler Avenue (Appendix G-29). A level of service C condition exists on the northbound approach, while level of service D condition exists on the southbound approach from First Street. It must be noted that a level of service F condition exists overall due to the failure of the westbound approach on Flagler Avenue. At this approach, peak hour volume exceeds intersection capacity.

The final intersection analyzed along the Bertha Street/First Street corridor was First Street/Palm Avenue with North Roosevelt Boulevard (Appendix G-39). A level of service F condition exists on the northbound approach to the intersection with North Roosevelt Boulevard. The southbound approach from Palm Avenue has a level of service D condition, however, this is heavily influenced by the extensive southbound left turns which exist at that approach. The overall level of service for the intersection of First Street with North Roosevelt Boulevard is D.

Fifth Street

A single link of Fifth Street from Flagler Avenue to North Roosevelt Boulevard was analyzed. Fifth Street is a local two-lane undivided collector street. The level of service calculated on Fifth Street was a level of service D. Table 1 provides a summary of level of service characteristics for this link while Figure 7 illustrates the level of service conditions graphically.

The intersections at both ends of Fifth Street were analyzed using HCS intersection level of service procedures. Figure 9 illustrates the overall level of service for both intersections located on Fifth

Street. The first intersection, Fifth Street at Flagler Avenue had a level of service B condition on each approach including northbound and southbound directions onto Fifth Street (Appendix G-30). The last intersection is Fifth Street with North Roosevelt Boulevard (Appendix G-41). Fifth Street terminates into North Roosevelt Boulevard on the northern side of the roadway link and a level of service C condition exists for both right and left turns.

Kennedy Drive

Kennedy Drive is a four-lane undivided local collector street which runs from Flagler Avenue to North Roosevelt Boulevard. Two segments were created on Kennedy Drive for analysis purposes. Table 1 summarizes the link segmentation and level of service characteristics on Kennedy Drive. Likewise, Figure 7 illustrates link level of service conditions. The first link analyzed , Flagler Avenue to Northside Drive, obtained a level of service B condition. Kennedy Drive, from Northside Drive to North Roosevelt Boulevard, obtained a level of service D condition.

The first intersection, Kennedy Drive at Flagler, was analyzed using HCS intersection level of service procedures. Figure 9 illustrates the overall level of service conditions for intersections analyzed along Kennedy Drive. A level of service B condition exists for both northbound and southbound approaches on Kennedy Drive (Appendix G-34). It must be noted, however, that the eastbound approach fails having exceeded the intersection capacity that approach. Future retimings and analysis of this intersection should result in additional green time being allocated to Flagler Avenue and subsequently reducing the green time available to Kennedy Drive, thus reducing its level of service. The last intersection analyzed on the Kennedy Drive corridor was the intersection of Kennedy Drive/Sigsbee Road with North Roosevelt Boulevard (Appendix G-42). A level of service D condition exists on the northbound approach from Kennedy Drive to North Roosevelt Boulevard. Likewise, a level of service D condition exists on the southbound approach on Sigsbee Road to North Roosevelt Boulevard. Overall, the intersections obtained a level of service D.

Sigsbee Road is a continuation of Kennedy Drive proceeding north of North Roosevelt Boulevard onto an island which is utilized for Navy housing. Sigsbee Road is a two-lane undivided collector.

- Creating a one-way pair system for Eaton Street using Caroline Street, and for Palm Avenue using Eisenhower Boulevard. Palm Avenue would be improved to four lanes between White Street and Eisenhower Boulevard.

- Improvements to lane geometry at the following intersections:
  - Flagler Avenue at First Street/Bertha Street;
  - Palm Avenue/Eaton Street at White Street;
  - Eaton Avenue at Grinnell Street; and
  - North Roosevelt Boulevard at Palm Avenue.

- Other directional changes to streets in and around the new Grinnell Street Park 'n' Ride Garage to facilitate improved site area circulation;

- The feasibility of diverting traffic onto the island to South Roosevelt Boulevard as opposed to North Roosevelt Boulevard;

- The effect of improved signage directing vehicular traffic to the Old Town area.

Other types of improvements will be considered as appropriate, based on comments received on this Technical Memorandum, as well as the Task Two, Origin and Destination Survey Technical Memorandum.

Utilizing arterial level of service analysis procedures, a level of service D condition was calculated for Sigsbee Road. Table 1 provides a summary of level of service conditions on Sigsbee Road.

Twentieth Street

Twentieth Street is a two-lane undivided local collector street. For level of service analysis purposes, Twentieth Street was divided into two segments. The first segment, Flagler Avenue to Duck Avenue and the second from Duck Avenue to Northside Drive both operate at a level of service B condition. Table 1 summarizes link segmentation and level of service characteristics on Twentieth Street. No HCS intersection level of service analysis was performed at any intersections along the Twentieth Street corridor.

RECOMMENDED ALTERNATIVE ANALYSIS

The purpose of this task was to present the existing condition analysis of the road network and key intersections. Information from the existing condition analysis will be used to develop alternatives and improvement recommendations in Task Four, Evaluation of Potential Diversion Routes. Based on the Consultant's review of the existing road network and intersection conditions, the following types of alternatives will be reviewed in Task Four.

- Signal timing adjustments at a number of signalized locations including:
  - North Roosevelt Boulevard at Kennedy Drive;
  - North Roosevelt Boulevard at Palm Avenue;
  - Palm Avenue/Eaton Street at White Street;
  - Flagler Avenue at First Street/Bertha Street; and
  - Flagler Avenue at Kennedy Avenue.

- Interconnection of signals along the following corridors:
  - North Roosevelt Boulevard;
  - Truman Avenue; and
  - Palm Avenue/Eaton Street.

APPENDIX i-A

1995 HIGHWAY CAPACITY MANUAL

LEVEL OF SERVICE DESCRIPTIONS

APPENDIX i-A
HIGHWAY CAPACITY MANUAL LEVEL OF SERVICE DESCRIPTIONS

Roadway level of service is defined from LOS A to LOS F [1]. General descriptions of operating conditions for each of the levels of service are as follows:

LOS A describes primarily free-flow operations. Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Even at the maximum density for LOS A, the average spacing between vehicles is about 528 feet, or 26 car lengths, which affords the motorist with a high level of physical and psychological comfort.

LOS B also represents reasonably free flow, and speeds at the free-flow speed are generally maintained. The lowest average spacing between vehicles is about 330 feet, or 18 car lengths. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.

LOS C provides for flow with speeds still at or near the free-flow speed. Freedom to maneuver within the traffic stream is noticeably restricted at LOS C, and lane changes require more vigilance on the part of the driver. Minimum average spacings are in the range of 220 feet or 11 car lengths. The driver now experiences a noticeable increase in tension because of the additional vigilance required for safe operation.

LOS D is the level at which speeds begin to decline slightly with increasing flows. In this range, density begins to deteriorate somewhat more quickly with increasing flow. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels. At the limit, vehicles are spaced at about 165 feet, or 6 car lengths.

LOS E describes operation at roadway capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver within the traffic stream at speeds that still exceed 50 mph. Any disruption to the traffic stream, such as vehicles entering from a ramp or a vehicle changing lanes, can cause following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate even the most minor disruptions. Maneuverability within the traffic stream is extremely limited, and the level of physical and psychological comfort afforded the driver is extremely poor.

DESCRIPTION OF SIGNALIZED INTERSECTION
LEVEL OF SERVICE

LOS A describes operations with very low delay, up to 5 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 5 and up to 15 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

LOS C describes operations with delay greater than 15 and up to 25 sec per vehicle. These higher delays may result from fair progression, long cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 25 and up to 40 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 40 and up to 60 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 60 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

[1] 1995 Highway Capacity Manual, October 1994

APPENDIX A

ADDITIONAL DATA COLLECTION