5.0 Viable Alternatives

After the corridor analyses were complete, two alternatives were identified as viable alternatives for further review. The two alternatives selected were Build Alternative 3, which connects the Wekiva Parkway to I-4 at SR 417 and Build Alternative 4, which connects the Wekiva Parkway to I-4 at SR 46. The two alternatives were analyzed using additional criteria to determine the preferred alternative. The additional traffic criteria included the following:

- Traffic distribution
- User benefits
- Roadway network connectivity
- Miles of deficient roadway

5.1 Traffic Distribution

One of the criteria used to compare the alternatives was traffic distribution. Using the traffic model, the travel patterns of vehicles were traced to determine the path that vehicles were traveling between Lake and Seminole counties using Wekiva Parkway. Figure 5-1 shows the traffic model distribution of Wekiva Parkway trips from the Seminole/Lake County line to their destination within Seminole County. The largest percentage of traffic (37 percent) is destined to or from SR 417. The second highest Wekiva Parkway traffic movement in Seminole County was to or from I-4 Eastbound, which accounted for 25 percent of the Wekiva Parkway traffic. The remainder of the Wekiva Parkway traffic was distributed onto local roadways, SR 46 and I-4 Westbound. With the significant interaction of traffic between Wekiva Parkway and SR 417, the ability to easily make this travel movement between these facilities is of the utmost importance.

Figure 5-2 illustrates the travel patterns of the two viable alternatives. In particular, Figure 5-2 shows the travel patterns allowed for the eastbound and westbound movements between Wekiva Parkway and SR 417 under each viable alternative. As shown in Figure 5-2, under Build Alternative 3, there is a direct connection for both westbound and eastbound traffic between Wekiva Parkway and SR 417. However, for Build Alternative 4, while eastbound traffic can connect between Wekiva Parkway and SR 417 via the collector distributor roadway system along I-4, the corresponding westbound movement cannot be made. Thus, the significant travel movement of westbound SR 417 traffic destined for Wekiva Parkway would be forced onto the local roadway network at either Rinehart Road or International Parkway because a direct westbound connection between SR 417 and Wekiva Parkway does not exist in Alternative 4. The unbalanced eastbound and westbound movements exhibited in Alternative 4 exist today between travel movements between SR 46 west of I-4 and SR 417.

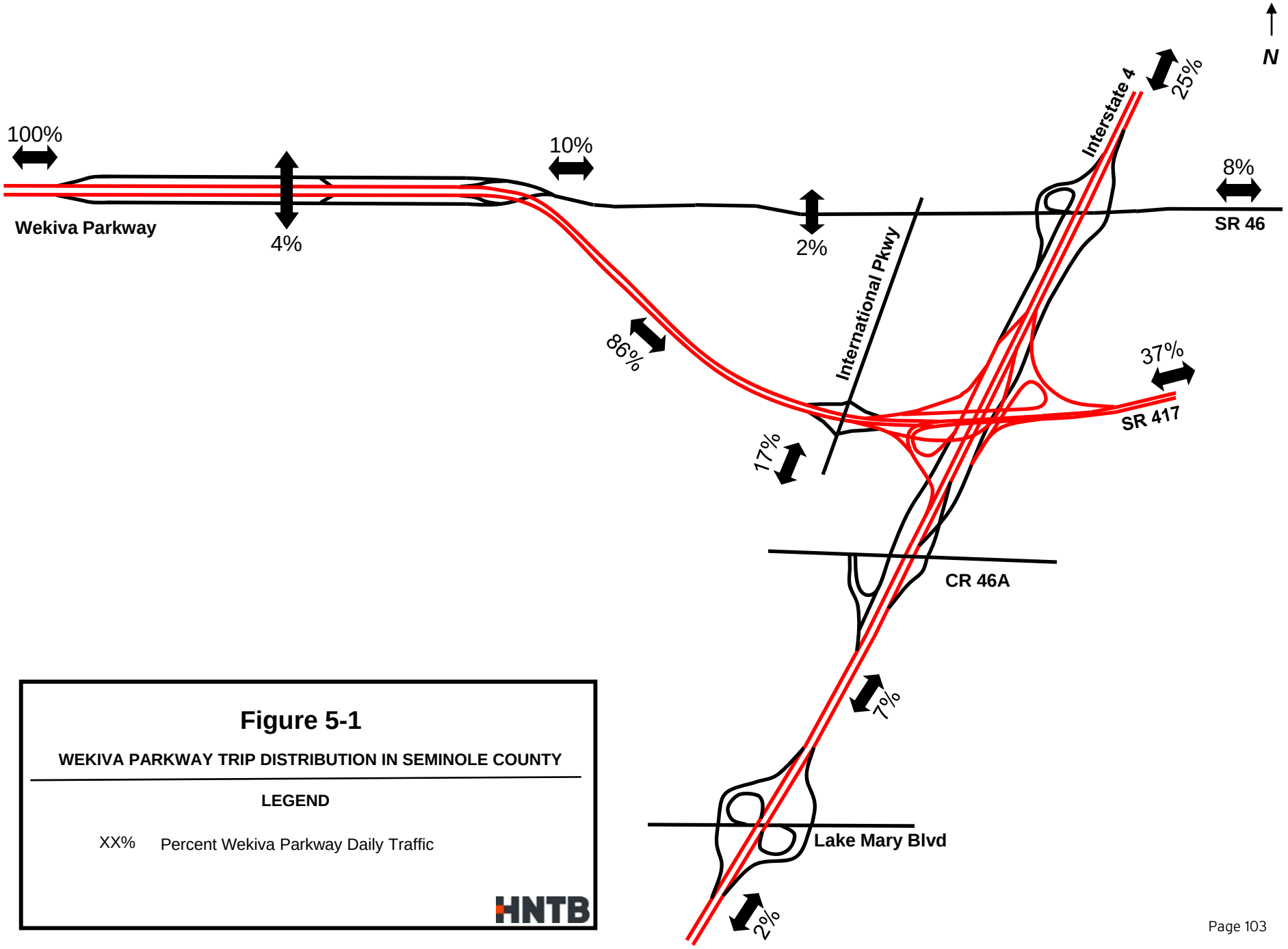

Figure 5-1

WEKIVA PARKWAY TRIP DISTRIBUTION IN SEMINOLE COUNTY

LEGEND

XX% Percent Wekiva Parkway Daily Traffic

HNTB

Build Scenario w/I-4 Connection Alternative 1
Wekiva Parkway connects to I-4 @ SR 417

0.25 0.125 0 0.25
Miles

N

HENDERSON LN
LAKE FOREST BLVD
WAYSIDE DR
INTERNATIONAL PKWY
TOWNE CENTER BLVD
RINEHART RD
WILSON RD
46
TOLL 429
431
4
TOLL 417

Build Scenario w/I-4 Connection Alternative 2
Wekiva Parkway connects to I-4 @ SR 46

0.25 0.125 0 0.25
Miles

N

HENDERSON LN
LAKE FOREST BLVD
WAYSIDE DR
INTERNATIONAL PKWY
TOWNE CENTER BLVD
RINEHART RD
WILSON RD
46
TOLL 429
431
4
TOLL 417

Figure 5-2
WEKIVA PARKWAY TRAVEL PATTERNS
VIABLE ALTERNATIVES

LEGEND

WB Movement

EB Movement

EXPRESSWAY AUTHORITY
WEKIVA PARKWAY Project Development and Environment Study
HNTB

5.2 User Benefits

The user benefits for each alternative were measured for five different highway network parameters. These parameters were:

- Vehicle Miles Traveled
- Vehicle Hours Traveled
- Average Speed
- Accidents
- Total Delay Due To Congestion

The user benefits and the percent change from the No-Build Alternative are shown in Table 5-1. The user benefits associated with Build Alternative 3 show more potential benefit to the user in all categories as compared to Build Alternative 4. For the vehicle hours traveled (VHT) the percent change for Build Alternative 4 is a 19.14% while Build Alternative 3 has only a 12.30% increase from the No Build Alternative. The total delay due to congestion is another parameter that highlights the difference between the two alternatives. Build Alternative 3 has a reduction of 11.12% while Build Alternative 4 has an increase of 1.22% in total delay due to congestion over the No-Build Alternative.

TABLE 5.1 SEMINOLE COUNTY USER BENEFITS COMPARED TO NO-BUILD ALTERNATIVE

Highway Network Parameter	Build Alternative 3: Wekiva Parkway Connection at SR 417	Build Alternative 4: Wekiva Parkway Connection at SR 46
Vehicle Miles Traveled (VMT)	23.93%	25.64%
Vehicle Hours Traveled (VHT)	12.30%	19.14%
Average Speed	14.39%	8.31%
Accidents	-1.43%	8.12%
Total Delay Due To Congestion (Vehicle Hours)	-11.12%	1.22%

5.3 Roadway Network Connectivity

The mobility issues identified in Table 5-2 were the basis for comparing the two alternatives. There are some common elements with both alternatives. For example, they each allow local access to the Wekiva Parkway either via SR 46 or one-way frontage roads and both provide the same access to westbound Wekiva Parkway from eastbound I-4. However, Alternative 3 allows direct access between SR 417 and the Wekiva Parkway in both the westbound and eastbound directions as well as to westbound I-4 from eastbound Wekiva Parkway. There are only two direct access connections allowed in Alternative 4. They are eastbound Wekiva Parkway to I-4 eastbound and westbound I-4 to westbound Wekiva Parkway. In Alternative 3, Wekiva Parkway has a full interchange with International Parkway, whereas, in Alternative 4 there is only a half interchange which connects only with SR 417.

TABLE 5.2 NETWORK CONNECTIVITY ISSUES

Mobility Issue	Alternative 3: I-4 Connection at SR 417	Alternative 4: I-4 Connection at SR 46
Eastbound movement between Wekiva Parkway and SR 417	Direct	via CD System
Westbound movement between SR 417 and Wekiva Parkway	Direct	via Local Roads
Wekiva Parkway EB to I-4 EB	via CD System	Direct
Wekiva Parkway EB to I-4 WB	Direct	via CD System
I-4 EB to Wekiva Parkway WB	via CD System	via CD System
I-4 WB to Wekiva Parkway WB	via CD System	Direct
Interchange with International Parkway	Full	Half
Local Access along SR 46 between Orange Blvd and I-4	Two-way Arterial	One-Way Frontage Roads
SR 46 Access to Wekiva Parkway	via Slip Ramps	via Slip Ramps

5.4 Miles of Deficient Roadways

The final factor measured was the miles of deficient roadways caused by each alternative in Seminole County. Table 5-3 shows by facility type the roadways that will operate at LOS E or LOS F. The facility types that are compared are collectors, arterials and expressways for the following alternatives: Existing Conditions, No Build, Build Alternative 3 and Build Alternative 4. When reviewing the table there are more deficient collectors in Build Alternative 3 than in Build Alternative 4. However, for the arterials and expressways there are more total deficient miles in Build Alternative 4 than in Build Alternative 3. Both of the alternatives have less miles deficient than the No-Build Alternative (21.58 miles), with Build Alternative 3 having a reduction of 6.65 miles and Build Alternative-4 having a reduction of 4.71 miles as compared to the No-Build Alternative.

TABLE 5.3 MILES OF DEFICIENT ROADWAYS

Alternative	Collector		Arterial		Expressway		Total
	LOS "E"	LOS "F"	LOS "E"	LOS "F"	LOS "E"	LOS "F"	
Existing Conditions	0	0	0.25	4.10	0.51	1.06	5.92
2032 No-Build	2.30	7.15	0	8.78	0	11.98	30.21
Alternative 3: 2032 Build I-4 Connection at SR 417	0.8	3.32	0.51	3.31	2.66	5.92	14.93
Alternative 4: 2032 Build I-4 Connection at SR 46	0	4.56	0	2.58	2.5	7.23	16.87

5.5 Summary

After comparing the results of the factors it was found that, overall, Build Alternative 3 was the preferred Build Alternative for further analysis. The Build Alternative 3 has more direct access connections between I-4 and SR 417 which is reflected in the user benefits. Build Alternative 3 provides a direct connection with SR 417, the movement that has the highest traffic distribution. Build Alternative 4, however, required westbound traffic from SR 417 to utilize local roadways to access the Wekiva Parkway, because a direct connection to Wekiva Parkway did not exist. As a result, for Build Alternative 3 the estimated percentage of accidents is decreased from the No-Build Alternative as well as the total delay due to congestion. Lastly, number of miles of deficient roadways in Build Alternative 3 is 6.65 miles less than the No-Build Alternative and only 9.01 miles more than existing conditions.