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Background

The purpose of this study is to contribute to the development of the campus master plan for TAMU-CC Campus on Ward Island along Ocean Drive in Corpus Christi as shown in Figure 1 – Vicinity Map. With the addition of new educational facilities on the campus, parking on or off the campus and vehicle access along Ocean Drive are issues that have to be addressed as traffic impacts. The campus phased development will be considered in two major stages with Phase 1 having a demand for 2,000 more parking spaces and Phase 2 with an additional 2,000 parking spaces.

Existing Conditions

The existing layout of the campus on Ward Island is shown in Figure 2 – Campus Existing Conditions. The campus parking lots have a total of 4,100 spaces, approximately. Access to the campus parking lots is provided by only two driveways intersecting Ocean Drive, which are both signalized. The driveways and Ocean Drive are four lanes wide. Ocean Drive has left turn lanes in the northbound direction at both driveways. The east driveway is Sand Dollar Drive and the west driveway is Island Boulevard. East of the island, Ocean Drive terminates at the Corpus Christi Naval Air Station. West of the island is the City of Corpus Christi with Ocean Drive intersecting Ennis-Joslin Road, which is signalized. Ennis–Joslin Rd. is a four-lane, divided arterial connecting Ocean Drive to SH 358 (Padre Island Drive).

A transit center exists on the north side of the campus with direct access to Ocean Drive. A special TAMU Shuttle is provided by the Corpus Christi Regional Transit Authority that circulates along major streets in the vicinity of the campus with stops at apartments and major shopping centers.

The City of Corpus Christi – Traffic Department provided 24-hour traffic volumes on Ocean Blvd. and Ennis-Joslin Rd. for 2005, which were utilized in the traffic analysis. Ocean Drive has 14,036 veh./day to the west and 20,329 veh./day to the east of Ennis-Joslin Road. Ennis-Joslin south of Ocean Dr. has 13,934 veh./day. Since the directional approach volumes were provided by these counts for this intersection, it was possible to develop the turning movements for the pm peak-hour.

Hourly, approach traffic counts from 2000 were provided by the City of Corpus Christi for the intersection of Sand Dollar Drive and Ocean Drive, which helped
determined the peak-hour of 4-5 pm for the combination of vehicles exiting the campus and on the Ocean Dr. westbound approach. These volumes are illustrated in Figure 3 – Existing Conditions – PM Peak-Hour.

A site visit was made to review the internal traffic circulation on the campus and the use of the parking lots during peak occupancy and activity. This was helpful in making recommendations for immediate improvements to the campus roadways and parking lots in the following section.

Immediate Improvements

From site observations and discussions with campus staff, the following recommendations for improvements are presented for consideration:

1. Improve the curb-cut for the pick-up/drop-off area next to Bell Library.
2. Re-configure Sailboat Parking Lot to line up the parking aisles with Seahorse Parking Lot for continuous traffic flow and safety.
3. Provide an additional entrance/exit for Jellyfish Parking Lot on Oso Lane.
4. Revise handicapped parking in front of Moody Field House.
5. Revise Starfish Parking Lot for access to Island Boulevard.
6. Improve pavement marking and signing on Surf Lane for one-lane westbound and two lanes eastbound with a lane-drop at Sailboat Parking Lot.
7. Add a pick-up/drop-off curb-cut near the Center for Instruction at the end of Curlew Drive.
8. With the unique location of the campus near the end of Ocean Drive, a coordinated traffic signal timing plan for the two driveway intersections and Ennis-Joslin Rd. is needed for exiting campus traffic in the evening peak-hours, especially 8-9 pm.

Future Improvements with Campus Phased Development

The existing traffic demand is handled adequately by existing Ocean Drive roadway configuration. The traffic exiting from the campus appears to be evenly distributed between the two driveway intersections in the 4-5 PM peak hour. The following comments are based on this even distribution continuing in the future as the campus grows.
For the Phase 1 development with a 50% growth of students on the campus, the existing roadway will be able to handle the traffic demand on Ocean Drive. This will require an additional 2,000 parking spaces on or off campus. Increasing the on-site parking by 2,000 spaces will increase the traffic demand on Ocean Drive to the maximum traffic volume that the intersection at Ennis-Joslin Rd. can handle as illustrated in Figure 4 - Future 50% Growth Conditions w/o Satellite Parking. This will require some minor lane improvements and signal timing optimization (multiple time of day plans) for the Ocean Dr./Ennis-Joslin intersection. The lane improvements would be adding a second left-turn lane on the Ocean Dr. westbound approach to Ennis-Joslin Road. If satellite parking is provided for the additional 2,000 spaces, the lane and signal improvements would not be needed and the traffic demand would not increase along Ocean Dr. as depicted in Figure 5 - Future 50% Growth Conditions w/ Satellite Parking. Figure 5, also shows the additional shuttle buses needed to carry the students in the PM peak-hour to and from the campus and the parking lot, which should not impact the traffic operations on Ocean Dr. and Ennis-Joslin Road.

For Phase 2 development added to Phase 1 for an overall 100% growth in student attendance, a total of 4,000 parking spaces will be needed on or off campus. If all these spaces are added to the campus, the traffic demand will exceed the capacity of Ocean Drive and its intersection with Ennis-Joslin Road. This resultant traffic demand is shown in Figure 6 - Future 100% Growth Conditions w/o Satellite Parking. To handle this traffic, Ocean Drive will need to be widened to 6 lanes from Island Blvd. to Ennis-Joslin Rd. requiring the bridge to be widened. Funding and environmental clearances for Ocean Drive roadway and bridge widening would be significant and costly. At Ennis-Joslin Rd., the westbound approach on Ocean Drive will need 2 thru lanes and 2 left turn lanes to function adequately requiring signal modifications as well.

However, if the 4,000 parking spaces were located at a satellite location as shown in Figure 7 - Future 100% Growth Conditions w/ Satellite Parking, the existing traffic operations along Ocean Drive can be maintained without improvements. Also, Figure 7 indicates that 30 shuttle buses from the campus to the satellite parking lot would be needed, but there should be only minor traffic impacts from the buses at the signalized intersections.

A satellite parking lot with frequent shuttle service would be more cost effective than the road/bridge improvements and parking garages for the required spaces on campus.
EXISTING CONDITIONS - PM PEAK - HOUR

600 VPH **
600 VPH **
1200 VPH **
900 VPH **
800 VPH **
300 VPH **
400 VPH **
300 VPH **
ENT. 1
ENT. 2

TAMU-CC CAMPUS

* - 2000 TRAFFIC COUNTS
** - CALCULATED FROM RECENT 24-HR TRAFFIC COUNTS
VPH - VEHICLES PER HOUR
FUTURE 50% GROWTH CONDITIONS
PM PEAK - HOUR W/O SATELLITE PARKING

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* DOUBLE LEFT TURN REQUIRED WB
VPH - VEHICLES PER HOUR

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PROJECT NAME:
TEXAS A&M
CORPUS CHRISTI
CAMPUS
TRAFFIC STUDY

SHEET TITLE:
FUTURE 50% GROWTH
CONDITIONS W/O
SATELLITE PARKING

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DATE:
NOV., 2006

FIGURE 4
FUTURE 50% GROWTH CONDITIONS
PM PEAK - HOUR W/ SATELLITE PARKING

1200 VPH +15B

800 VPH +10B

ENT. 1

ENT. 2

OCEAN DRIVE

TAMU-CC
CAMPUS

2,000 sp.

SATELLITE PARKING

300 STUDENTS @ 20/BUS =15 TRIPS
B = BUSES
VPH = VEHICLES PER HOUR

384 =

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PROJECT NAME:
TEXAS A&M
CORPUS CHRISTI
CAMPUS
TRAFFIC STUDY

SHEET TITLE:
FUTURE 50% GROWTH CONDITIONS W/ SATELLITE PARKING

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FIGURE 5
FUTURE 100% GROWTH CONDITIONS
PM PEAK - HOUR W/O SATELLITE PARKING

* REQUIRES 6 - LN BRIDGE AND 6 - LN ROADWAY
FROM SPUR 3 TO ENTRANCE 1
VPH - VEHICLES PER HOUR

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SATELLITE PARKING

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FIGURE 6
FUTURE 100% GROWTH CONDITIONS
PM PEAK - HOUR W/ SATELLITE PARKING *

1200 VPH
+30 B

800 VPH
+20 B

ENT. 1

ENT. 2

OCEAN DRIVE

30B↓

20B↑

SPUR 3

4000 sp.

SATELLITE PARKING

TAMU-CC

CAMPUS

* MAINTAIN EXISTING CONDITIONS
W/ MINIMUM IMPACT FROM 30 BUSES WB
VPH - VEHICLES PER HOUR

DATE: NOV., 2006

FIGURE 7