Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS

TRAFFIC IMPACT STUDY

The Dover Transit Center

Water and Queen Streets

City of Dover, Kent County, Delaware

Prepared for
Kling Stubbins

Prepared by
Orth-Rodgers & Associates, Inc.
December 4, 2007

ORA Job No. 2007 052

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Memorandum

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TO: Karen Anderson, KlingStubbins
Charles McGloughlin, Kling Stubbins

From: Derrick Kennedy

RE: Dover Transit Center

Date: December 4, 2007

As requested Orth-Rodgers & Associates (ORA) has reviewed two additional concept plans associated with the proposed Dover Transit Center. Our analysis for the previously proposed concept plans were compiled in a report dated January 30, 2007. That report included an in-depth traffic analysis of the proposed facility and included specific information regarding items such as peak hour trip generation, trip distributions, and vehicular levels of services. It should be noted that although new conceptual plans are being developed, the general characteristics of the proposed site remain the same and most of the technical data found in the January 30, 2007 report remains valid. As such, this memorandum is meant to supplement, not replace, the previously completed efforts.

KlingStubbins has provided ORA with two new concept plans for the proposed site. These plans are attached, and are being referred to as Concept 1 and Concept 2.

Concept 1 includes a loop road, which has 13 city bus ports with bus access on West Street only. There is also a 67 space-parking field located north of the loop road with a single access point on West Street. This parking area is also shown to have some parking spaces dedicated to a private ambulance service. On Water Street, Concept 1 would have and entrance and exit dedicated to DART's intercounty bus service and Greyhound. Along Queen Street, there is a second parking field that includes 55 spaces and a cab/drop off area. This parking area is shown with two access points on Queen Street.

Concept 2 also includes a loop road, with access on West Street only; this loop road provides 12 city bus ports. North of the city bus loop road there is a 100 to 110 space parking field with access points on West Street and on Water Street. Under this concept the Intercounty busses and Greyhound are served by an entrance on Water Street and an exit along Queen Street. Additionally, there is an area of the site dedicated to a private ambulance service along the Queen Street frontage.

Based on the analysis presented in the January 2007 report, and review of the latest concept plans, ORA has identified various items for consideration. In general, our findings offer proven design practices that should be considered early in the planning process and incorporated into the site plan where possible.

Concept 1 – Comments

1. Bus Access
   - A beneficial component of this concept is that no bus access is planned on Queen Street. Since Queen Street has the highest amount of traffic of all frontage roads, it would be the most difficult access point for busses, particularly for busses turning left.
   - Due to the size of the busses, the Intercounty/Greyhound access driveways on Water Street will likely operate with right turns in and right turns out. This seems

to be a desirable design, because the busses will then be able to head east on Water Street without having to turn at the intersection of Queen and Water.

- Some consideration should be given towards minimizing the total number of "curb cuts" along the site's frontage. Along West Street, there are three driveways in very close proximity. We recommend redesigning the city bus loop road so that both the entering and exiting movements are made a single driveway location. This change will help separate and distinguish the bus access and parking lot access, it will reduce the number of conflict points for motorists as well as pedestrians and it will reduced the potential of having motorists enter or exit at the wrong locations.

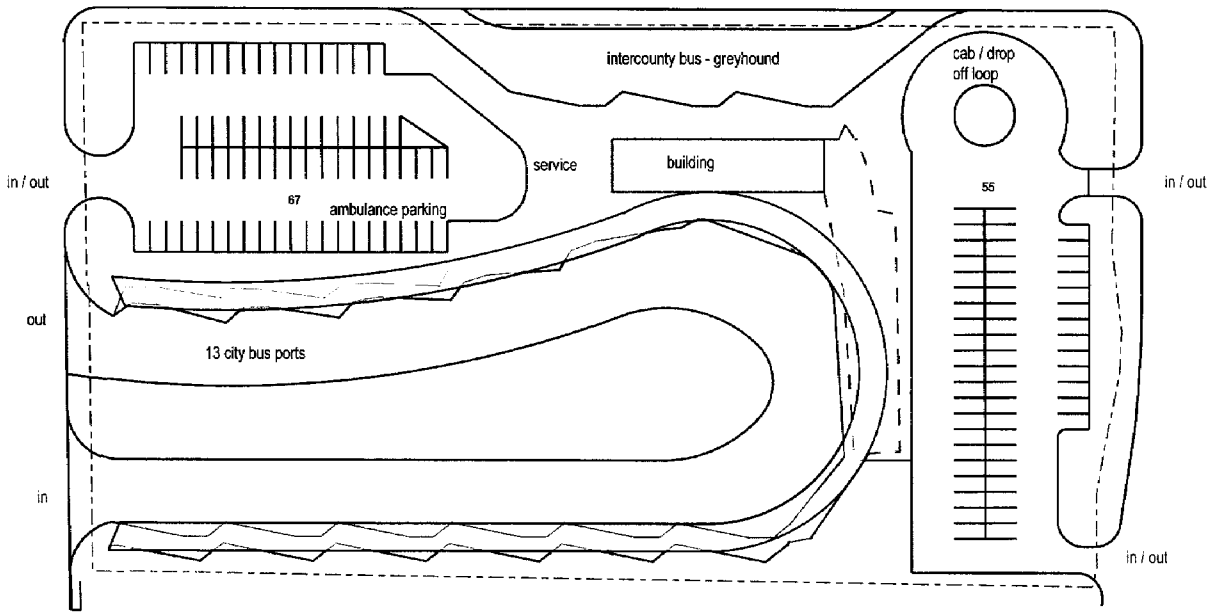
2. Parking Lot Access and Design
    - Since the proposed parking lot on West Street is shown with a single access point, a one-way flow with angled parking may produce more parking spaces.
    - The parking lot along Queen Street shows two access points. It should be noted that the northern most access point would be located very close to the signalized intersection of Queen and Water Streets. Turning to and from this access point may be difficult. It is our recommendation that this access point be eliminated. A single access point on Queen Street at the southern end of site would adequately serve this lot. It should be noted that left-turning traffic may experience increased delays at this location. However, considering that the lot will serve just 55 parking spaces and no bus traffic, we do not expect any significant queuing to be caused by this access.
    - It should be noted that having two distinct parking lots with access points on different roadways may create and inconvenient situation for motorists looking for an open space. Consideration should be given towards defining how these lots will operate and who will able to park in each of those lots. For example, the lot on west street cloud be gated and reserved for DART employees and the ambulance service, while the Queen Street lot could be open to the public.

Concept 2 - Comments

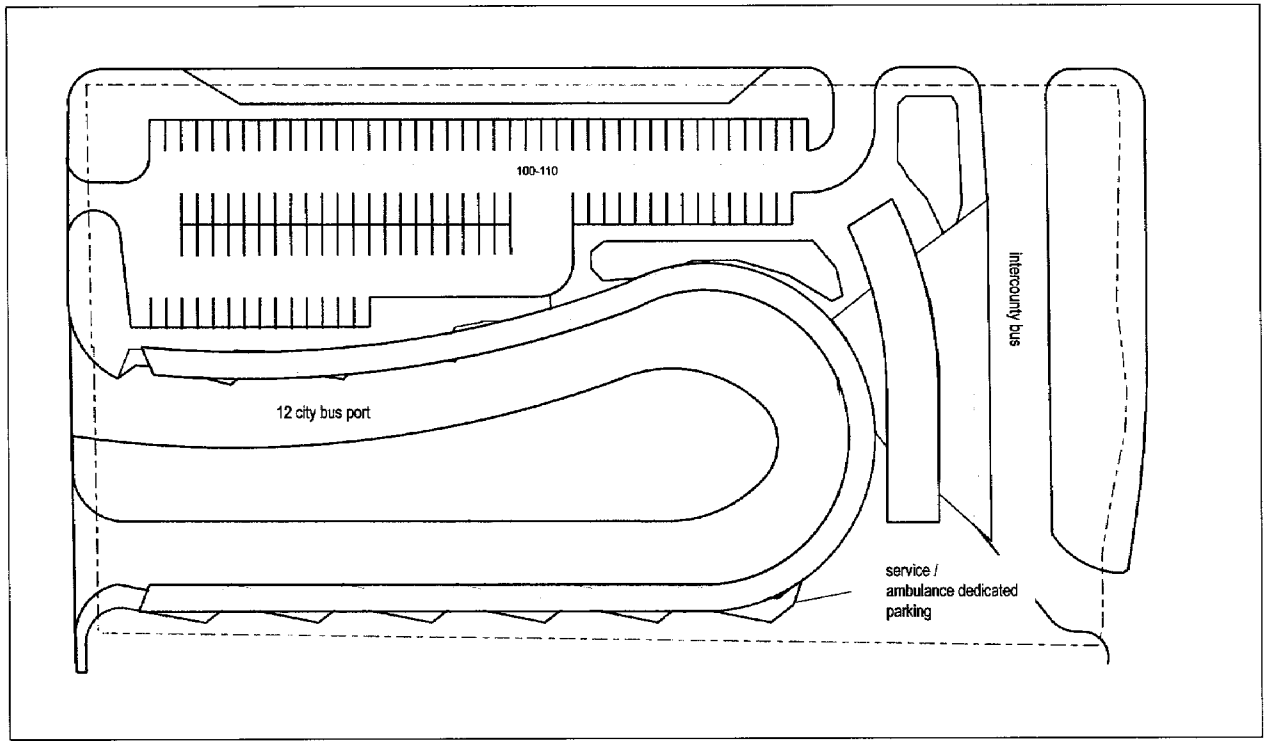
3. Bus Access
    - The concept shows the Intercounty/Greyhound busses gaining access to the site via a driveway on Water Street, just east of the Queen Street intersection. It should be noted that left turn access into this driveway would be problematic. Due the traffic signal at the adjacent intersection, traffic will routinely backup on Water Street blocking this access point. ORA does not recommend having this access point near the intersection. However if Concept 2 is selected, this access point should be planned to accommodate only entering right turns.
    - On Queen Street, there is an access point at the southern end of the site that would serve the Intercounty/Greyhound busses as well and the private ambulance service. As previously noted Queen Street has the highest amount of traffic in the area and would be the most difficult access point for busses. During the peak hour, average delays of more than 30 seconds per vehicle will exist and significant queuing of exiting busses may occur. If Concept 2 is selected, this access point should be designed to accommodate exiting right turns only.
    - If the Intercounty/Greyhound busses are restricted to right turns out at Queen Street, DART should closely review the routes in which those busses will be assigned. Currently most busses run along Water Street at some point during each run and directing those busses southbound on Queen Street may significantly increase the travel time and distance for those busses.
    - If Concept 2 were carried forward, another potential option would be to reverse the direction of flow for intercounty busses. If an adequate turning radius can be provided, the better option may be to have the larger busses turn right into the site from Queen Street and exit by turning right out of the site onto Water Street.
    - As previously noted, some consideration should be given towards minimizing the total number of "curb cuts" along the site's frontage. Along West Street, there are three driveways in very close proximity. We recommend redesigning the city bus loop road so that both the entering and exiting movements are made a single

driveway location. This change will help separate and distinguish the bus access and parking lot access, it will reduce the number of conflict points for passing motorists as well as pedestrians and it will reduced the potential of having motorists enter or exit at the wrong locations.

4. Parking Lot Access and Design
    - When compared with Concept 1, Concept 2 provides a more defined and better accessible parking component. However, the total number of parking spaces appears to be less.
    - Along Water Street the parking lot access point seems to be too close to both the signalized intersection and the proposed bus access point. We recommend moving the parking lot access to a mid bock location to avoid having vehicular queues regularly block the driveway.
    - The plan appears to show a drop off area along Water Street curb line. Compared to other concepts, this drop off area is notably far from the transit center building. If the parking lot access point were moved away from the signalized intersection, this would allow for the drop off area to be situation east of the parking lot access point and closer to the building.


intercounty bus - greyhound
cab / drop
off loop
service
building
in / out
67
ambulance parking
55
in / out
out
13 city bus ports
in
in / out

Concept 1


100-110
intercounty bus
12 city bus port
service /
ambulance dedicated
parking

Concept 2