CHESTER RIVER BRIDGE CROSSING FEASIBILITY STUDY

From McGinnes Road to Worton Road
Queen Anne's County and Kent County, Maryland

FINAL REPORT

Prepared for:
Maryland Department of Transportation
State Highway Administration

January 2010

SHA
State Highway Administration
Maryland Department of Transportation

Table of Contents

Page

Figures

Tables

Appendices

1.0 Introduction

The Maryland State Highway Administration (SHA) has completed this Feasibility Study for the MD 213 Corridor connecting Queen Anne's County and Kent County including the Chester River Bridge. The Feasibility Study evaluated the feasibility of multiple concepts for maintaining a crossing of the Chester River and meeting future transportation needs along the corridor. The goal of the Feasibility Study is to identify several concepts and ultimately lead to a selected build alternative.

The SHA has completed Project Planning Studies in the past for this corridor to work towards an alternative to provide greater capacity over the Chester River Bridge and to meet the future transportation needs along the corridor. During the course of the previous study, alternative consensus was not reached and the efforts were tabled.

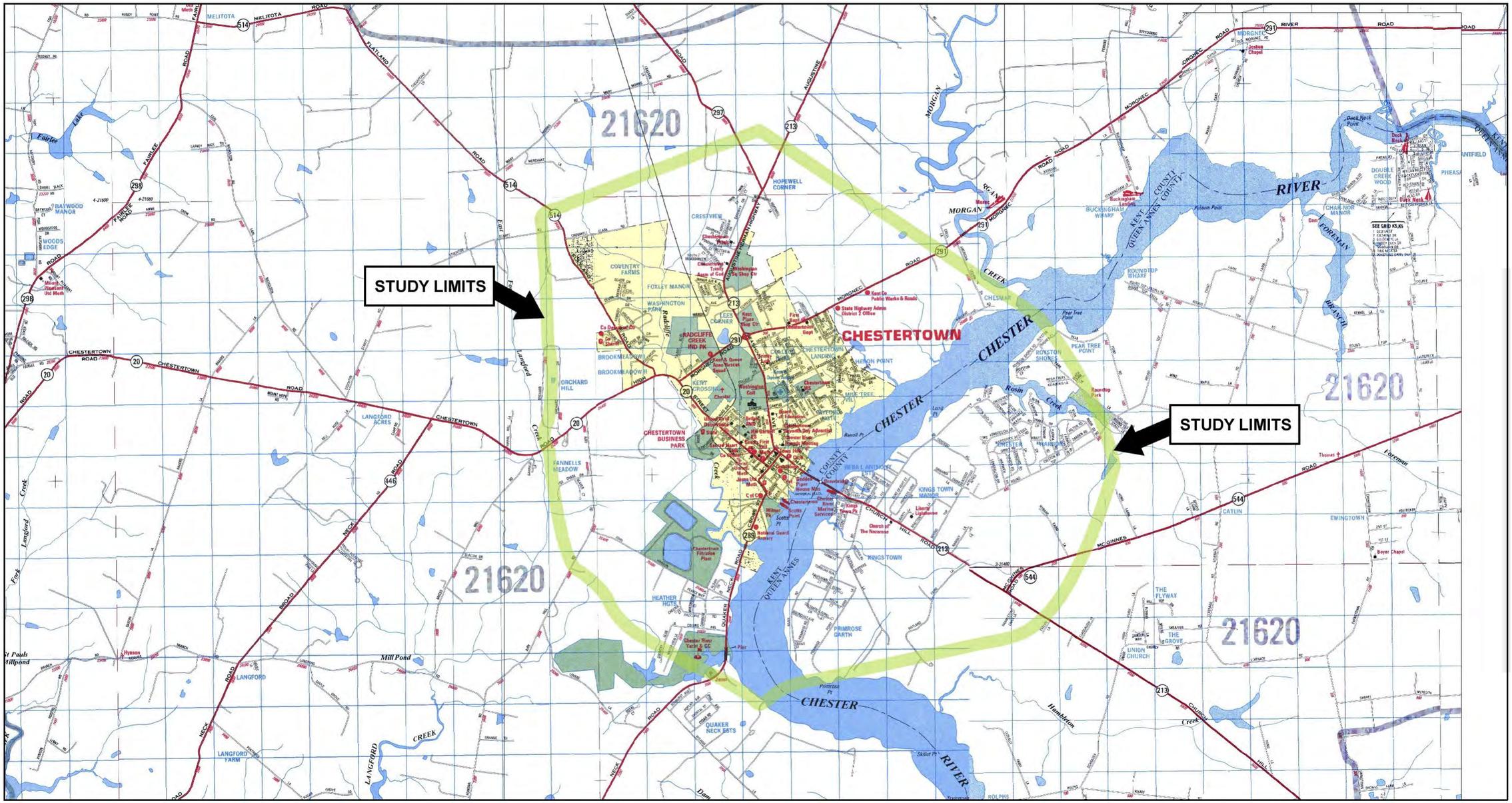
This Feasibility Study has revisited the previous studies and alternatives developed as well as utilized current data and trends to develop additional potential concepts. These concepts have been evaluated with preliminary traffic analysis and input from the agencies and municipalities to determine the concepts recommended moving forward to the Project Planning Phase.

2.0 Study Area

The Study Area for the Chester River Crossing Feasibility Study includes MD 213 from the intersection of MD 544 in Queen Anne's County on the south, through Chestertown, to the intersection of MD 297 in Kent County on the north for a total distance of approximately four miles. The study area includes approximately two miles east and west of the existing MD 213 Chester River Bridge (see Figure 1).

This page intentionally left blank.

Figure 1: Location Map



This page intentionally left blank.

3.0 Study Team

The current Feasibility Study team consisted of representatives from Kent County, Queen Anne's County, Chestertown, the Maryland State Highway Administration (SHA), and JMT (consultants for SHA).

A total of four team meetings were held to present the Feasibility Project, develop concepts and determine recommendation for these concepts to move into a Project Planning Study. These meetings were held in 2009 on January 23, March 26, May 4, and July 10th.

A presentation of the recommendation of this study is anticipated for the Commissioners of both Counties and the Town Council for Chestertown.

4.0 Previous Studies and Regional Master Plans

The MD 213 Corridor and Chester River Crossing have been under study through various efforts for several decades. In addition, both Queen Anne's County, Kent County and Chestertown have included various statements regarding this corridor within their individual master planning efforts. These previous efforts and current master planning efforts were utilized for much of the base information included within this Feasibility Study, supplemented as necessary with current data. The documents referenced include the following:

- Environmental Assessment, June 1986
- Supplemental Environmental Assessment, November 1987
- Finding of No Significant Impact, November 1991
- MD 213 Needs Study, 2006
- MD 213 Origin-Destination Study, November 2007
- Bridge Inspection Report for Bridge No. 14027, November 2007
- Underwater bridge Inspection Report, December 2007
- Queen Anne's County Comprehensive Plan, 2002
- Kent County Comprehensive Plan, 2006
- Chestertown Comprehensive Plan, 2005

4.1 Environmental Assessment (EA), 1986 / Supplemental EA, 1987 / Finding of No Significant Impact (FONSI), 1991

The MD SHA conducted and completed a Project Planning Study in the 1980's with a signed FONSI with FHWA in November 1991. This study included evaluating the existing conditions of the study area, similar to the current study area, and developing various alternatives for providing additional capacity across the Chester River and meeting the then projected

needs of the area. This project planning study utilized the information gathered during the 1977 efforts that included an uncirculated DEIS and a November, 1978 Public Meeting during which the opposition to the project for a bypass resulted in the SHA dropping the study. At that time a parallel bridge replacement was developed (Alternate 3C) and location approval received in June, 1983. This project planning study was conducted based on input to re-evaluate a bypass option.

The alternatives developed during the Project Planning Study (as discussed below) were taken to public meetings for input. Based on these public meetings and concern from the various agencies, a Supplemental Environmental Assessment was developed evaluating a revised alternative. From this Supplemental EA, an alternative was selected and was carried forward into a FONSI that was signed by the Federal Highway Administration on November 1991. The project was not pursued for numerous reasons including a resolution passed by Queen Anne's County in opposition of the then current Selected Alternative.

The alternatives previously studied and included within the various documents of the previous Project Planning Study include the following, with descriptions as provided in the original environmental documents referenced above (Alternatives illustrated in Appendix A):

- No-Build Alternate – The No-Build Alternate consists of routine maintenance and would include the rehabilitation of the existing Maryland Route 213 Bridge.

  This alternative was recommended for detailed studies based on the 1986 EA.

Note: All build alternatives assumed a new four-lane roadway and bridge.

- Alternate 3C – Proposed Alternative 3C consists of replacing the existing bridge over the Chester River. The new span will run parallel to the south side of the existing span. Location approval for this alternative was received in June, 1983 based on a previous study.

  This alternative was later dropped in the Supplemental EA as it was not considered an alternative for the bypass. It was stated that when it becomes necessary to replace the existing bridge, this alternative could be built.

- Alternate N-1 – This alternative begins approximately 3,400' southeast of the Maryland Route 544 intersection, continues in a

northerly direction, and crosses Maryland Route 544 and Round Top Road along the west edge of the Chester Harbor subdivision to Fey Road. Alterative N-1 would cross the Chester River on a new bridge upstream from the existing bridge, and then intersect Maryland Route 291 just west of the State Highway Administration offices. The Alternate would pass east of Gill Airport and merge with existing Maryland Route 213 approximately 1,700' north of Maryland Route 297.

This alternative was considered the preferred alternative from the 1986 EA and recommended for detailed studies.

- Alternate N-2 – Beginning at the southernmost terminus, Alternate N-2 coincides with N-1 to a point between Round Top Road and Fey Road where this alternate diverges in an easterly direction. This alternate crosses Fey Road about 400 feet northeast of the N-1 crossing, with an at-grade intersection. It crosses the river one-one-quarter miles upstream of the existing bridge on a medium level structure into Kent County. The structure will have an under-clearance of 25'. It passes through a strand of hardwoods between a fresh water marsh and the Chesmar Estates Subdivision. The alternate continues northwesterly to intersect with Route 291, with an at-grade intersection. Beyond Route 291, N-2 proceeds to the east of Stafford Farm along the edge of a wooded area to merge with existing Route 213, about a mile north of Route 297.

  This alternative was dropped from further study in the 1986 EA based on the high cost, longer bridge structure required and more right-of-way needed than other options.

- Alternate N-3 – Alternate N-3 was requested by the Chester Harbor community and the Queen Anne's County elected officials to be re-evaluated from the 1970's study. Alternate N-3 begins on existing MD 213 approximately 9,000 feet southeast of MD 544 and runs in a northerly direction crossing Union Church Road. Then curving in a northwesterly direction, Alternate N-3 crosses MD 544 approximately 7,000 feet northeast of MD 213 and passes on the northeast side of Chester Harbor crossing Rosin Creek. It crosses Chester River about 9,300 feet north of the existing bridge. On the Kent County side, it passes through Chesmar Estate and crosses MD 291 approximately 7,500 feet northeast of the intersection of MD 291 and existing MD 213. Alternate N-3 continues east of the Stafford Farm and ties into existing MD 213 north of MD 297.

  This alternative was dropped due to having a higher cost and more impacts than the selected alternate.

- Alternate N-1 Modified – [This alternate] has the same alignment as Alternate N-1 except for a length of 1.5 miles in Kent County adjacent to the Chester River. This shift in alignment was necessary to minimize impacts to wetlands. Beginning on MD 213, approximately 0.7 mile southeast of MD 544 and following the same alignment as Alternate N-1, it intersects Round Top Road. Proceeding in a northwesterly direction, Alternate N-1 Modified intersects Fey Road and crosses the Chester River on a fixed span bridge, the location of which is slightly to the east of the original Alternate N-1 Bridge. Continuing through the brick company property, this alternate intersects MD 291 just west of the Delmarva Power Company. Approximately 0.3 miles north of MD 291, it merges with the original Alternate N-1 alignment. It passes east of the Scheeler Airstrip Field and merges with existing MD 213 about 0.4 miles north of MD 297.

  This alternative was developed for the Supplemental EA and was dropped based on its close proximity to the Chester Harbor community.

- Alternate N-1A – Alternate N-1A begins on existing MD 213 approximately 0.4 mile east of the MD 544 intersection and follows the existing route for about 0.5 mile. A 13-foot wide center turn lane would be provided for this section of roadway. At this point, Alternate N-1A leaves the existing road, runs in a northerly direction and intersects with Round Top Road. A realignment of Round Top Road at this location would be necessary to provide a better sight distance at this intersection. Continuing in the same direction, it proceeds towards Fey Road and curves to the west, crossing Fey Road at-grade bridging the Chester River. From this point, this alternate would have the same alignment as Alternate N-1 Modified until it merges with existing MD 213 on the Kent County side.

  This alternative was developed for the Supplemental EA and was dropped based on it being considered inferior to Alternate N-1B from a traffic and engineering standpoint.

- Alternate N-1B – Alternate N-1B, as presented at the Supplemental Location/Design Public Hearing, begins on the existing alignment 0.7 mile southeast of MD 544 and follows the same alignments as Alternate N-1 Modified up to MD 544. At this point it leaves this alignment as runs to the west of Alternate N-1 Modified and approximately 200 feet west of Chester Harbor subdivision. Intersecting Round Top Road and Fey Road at-grade, Alternate N-

1B crosses Chester River on a fixed span bridge. From here this alternate follow the same alignment as the others.

Alternate N-1B was the selected alternative for this completed Project Planning Study and was the alternative approved in the FONSI.

- Alternate S-1 – Alternate S-1 begins on Maryland Route 213 approximately ¼ mile northwest of the present intersection with Maryland Route 544. S-1 leaves the existing road at this point in a westerly direction and passes south of Kings Town, crossing Truslow Road with an at-grade intersection at the present intersection of Hillside Road. Beyond Truslow Road, it crosses the Chester River on a new bridge approximately 0.3 of a mile downstream of the existing bridge. This bridge is proposed to have a clearance of 45 feet above the river. In Kent County, S-1 crosses over Route 289. Access to Route 289 would be via an at-grade intersection 600 feet north of Route 289. The alternative then continues northwesterly parallel to the railroad tracks, crosses a proposed industrial park, and crosses Radcliffe Creek 0.2 miles southwest of High Street opposite the Chestertown Cemetery. Continuing in a northerly direction S-1 intersects with Route 20 approximately 250 feet east of the junction of Routes 20 and 514, with an at-grade intersection. S-1 then parallels Radcliffe Creek east of Washington Park crossing the railroad at-grade, and continues in a northerly direction intersecting Route 297 at-grade, west of the present intersection, continuing 0.4 of a mile farther to merge with existing Maryland Route 213.

  Alternate S-1 was dropped from further study in the 1986 EA due to a potential impact to a proposed industrial park, an at-grade railroad crossing and the bridge height as well as being the most expensive of the options.

- Alternate S-2 – Alternate S-2 [was similar to Alternate S-1] and was the longest and most expensive of all of the alternates. It would have required eight stream crossings and a rail crossing. It would have affected several homes along River Road and access to farms south of Treslow Road.

  Alternate S-2 was dropped from further consideration due to the reasons above.

4.2 MD 213 Needs Study, 2006

In 2006, a Need Study for MD Route 213 was conducted examining problems along the approximately 35 mile corridor from Galena to Centreville. Of the 17 problem sites identified in the study, five were located within the limits of this current Feasibility Study including the following:

- Congestion at the MD 213 / MD 291 intersection
- Traffic volumes between MD 291 and Chester River in Chestertown, particularly trucks and through traffic
- Punch list issues at the MD 213 / Spring Avenue intersection
- Chester River Bridge at Chestertown
- Congestion at the MD 213 / MD 544 intersection

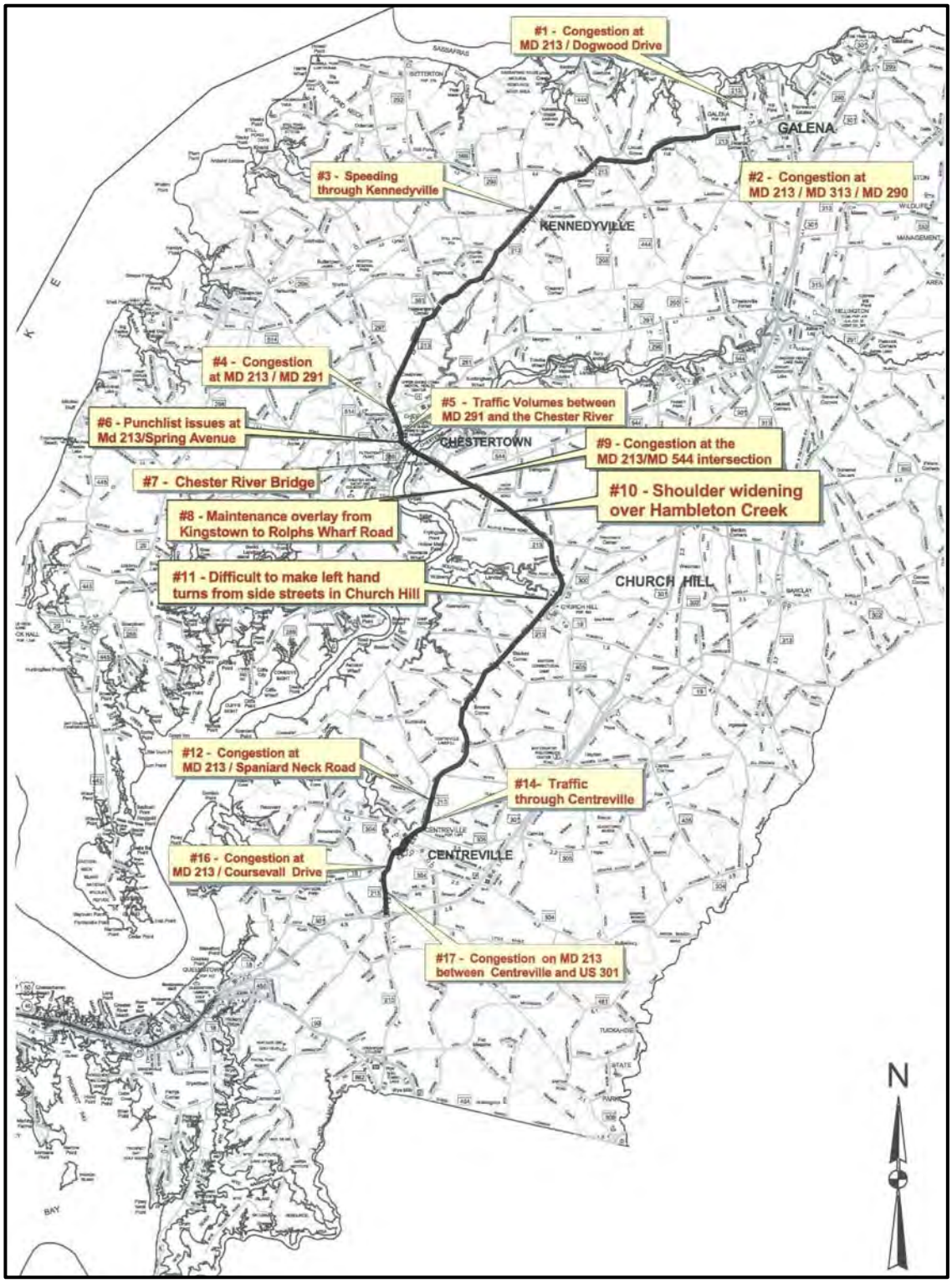
Figure 2, from the MD 213 Needs Study, reflect the outcome of that study.

4.3 MD 213 Origin-Destination Study, November 2007

In 2007, the Maryland State Highway Administration initiated an Origin-Destination study to examine the traffic patterns along the MD 213 corridor. This study was conducted in response to comments and questions from elected officials, local governmental staff and citizens regarding traffic patterns and conditions in the MD 213 study area. On April 18, 2007, data was collected for an origin-destination study at twelve corridor locations within Kent and Queen Anne's Counties.

One of four trip patterns of particular interest was the Chestertown area. The study sought to determine the direction and volume of through and local trips (auto and truck) in and through Chestertown. Travel patterns were established by recording photographs of license plates at each recording station and then matching those plates as they passed the other stations in the project area, tracking how the trips are geographically being made through the region. Local trips are those that have a purpose for being in Chestertown (make a stop in town). Through trips are those which pass through town without stopping and did not have a need to be in Chestertown itself.

Figure 2: MD 213 Problem Areas
(As presented for the MD 213 Needs Study)



The following stations were located along roadways into and out of Chestertown (and illustrated in Figure 3):

- MD 213 north and south out of town (Stations 1 and 2)
- MD 20 west of MD 514(Station 7)
- MD 514 north of MD 20(Station 8)
- MD 291 in front of the SHA District 2 Office (Station 6)
- MD 289 west of Chestertown limits (Station 9)

Key results of this study when looking at all vehicle types are as follows:

- When looking at the traffic entering town from all six stations combined, it was found that 79% of the trips were local and had a stop within the town, while 21% traveled through the town in ten minutes or less and are considered through trips.
- When the through trip threshold is doubled to 20 minutes to account for the possibility of heavy congestion, the rate for through trips increases from 21% to 27%.
- For traffic entering the town from Stations 1 and 2 only, 77% of trips were found to be local and 23% were through. Of the 23% through trips, 10% are through trips directly between Stations 1 and 2 along MD 213, with the remaining 13% going through to other stations to the east and west, representing 6% through to MD 20, 2% through to MD 291, and 5% through to other connections.
- The previous O-D survey done by SHA in 1979 showed that 30% of traffic entering Chestertown on MD 213 from the north and south is through town traffic, with about 20% going straight through town to the other MD 213 station. Both of these are slightly higher than the 2007 survey values of 23% and 10% respectively.
- More through trips interact between the MD 213 stations (1 and 2) and the stations to the west (7, 8, and 9) than the station (6) to the east.

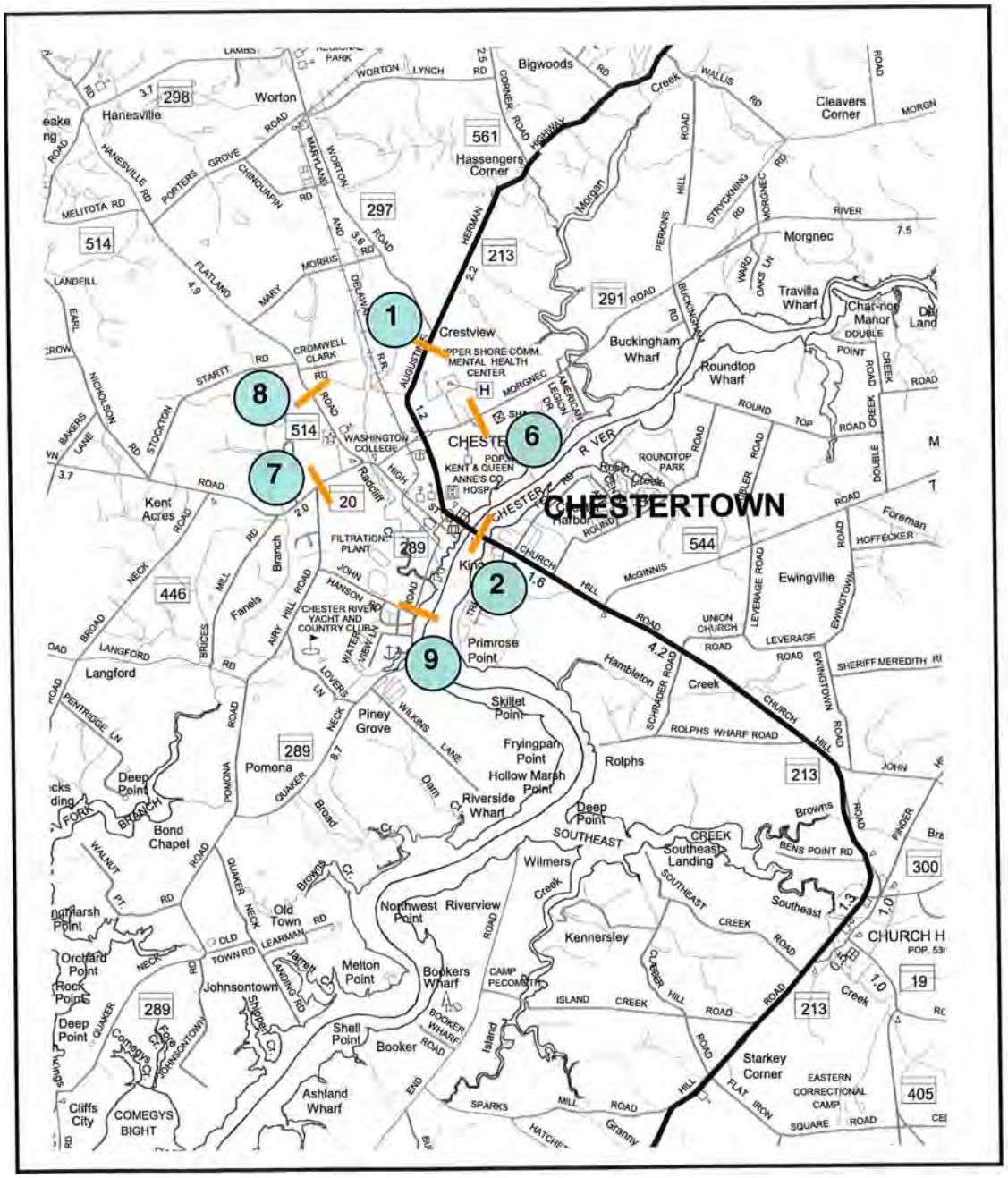
Key results of this study for truck traffic only are as follows:

- When looking at the truck traffic entering town from all six stations combined, it was found that 71% of the trips were local and had a stop within the town, while 29% traveled through the town in 10 minutes or less and are considered through truck trips.
- When the through trip threshold is increased to 20 minutes, the through trip rate increased from 29% to 33%.
- For truck traffic entering the town from Stations 1 and 2 only, 66% of trips were found to be local and 34% were through. Of the 34% through trips, 21% are through trips directly between Stations 1 and 2, with the remaining 13% going through to other stations to the east and west.

- The previous O-D survey done by SHA in 1979 showed that 40% of truck traffic entering Chestertown on MD 213 from the north and south is through town traffic, with about 31% going straight through town to the other MD 213 station. Both of these are slightly higher than the 2007 survey values of 34% and 21% respectively.
- The 2005 truck O-D study found the value of through truck traffic staying on MD 213 to the other side of Chestertown was about 20%, which is very similar to the 2007 value of 21% between Stations 1 and 2.

Traffic in Chestertown is expected to continue to show the current high rate for local trip generation, with the through rate continuing slow decreases in the coming years. While the percentage of trips that are considered through may stay the same or decrease, the overall volume of traffic on MD 213 in Chestertown is expected to continue to increase in the coming decades due to existing and projected land use patterns focusing area growth within or near Chestertown.

Figure 3: Chestertown Recording Locations
(As presented in the MD 213 Origin-Destination Study, page 12, Figure 3)



4.4 Bridge Inspection Report, November 2007

In November of 2007, an inspection was conducted in accordance with current Federal Highway Administration and AASHTO standards. The overall structure of the bridge appeared to be in good to fair condition, with localized areas of deterioration which will require repair in the immediate to short term. The mechanical system appeared to be in overall fair condition. One safety concern observed during the inspection was the speed at which the manual drive sprocket rotates, with no guard to protect personnel on the bridge, while the bridge is operating. A short term safety recommendation to provide and install guards over the manual drive sprocket on both leaves has been made. Overall, the electrical system appeared to be in good condition, with some maintenance and repair items that should be addressed in the immediate and short term to ensure reliable span operation.

4.5 Underwater Bridge Inspection Report, December 2007

An underwater inspection was performed on the Chester River Bridge (No. 14027) on December 17 through 21, 2007. A visual inspection was performed from one foot above the waterline (splash zone) to the mudline. Soundings were taken along all substructure units and up to 30 feet upstream and downstream of the bridge. The underwater portions of the structure were in satisfactory condition in accordance with Item 60 of Maryland State Highway Administration's Guide for Completing Structure Inventory and Appraisal Input Forms, June 2003. At the time of the inspection, the condition of all substructure units was consistent with the conditions noted in the previous 2003 report. There were no significant changes in structural condition.

4.6 Queen Anne's County Comprehensive Plan, 2002

Transportation (pp. 40-41, 44)
The Queen Anne's County Comprehensive Plan was completed in 2002 and contains several transportation figures and objectives pertinent to the MD 213 study area. According to the plan:

- The two most important routes in the secondary system are MD 213, a north-south route across the County serving the County seat at Centreville, and MD 18, which parallels US 50/301 across Kent Island and links the communities of Stevensville, Chester, Grasonville, Queenstown, and Centreville.
- In the Kingstown area just south of Chestertown, they [traffic volumes] peak again at 11,975 vehicles.
- Traffic growth on the secondary system has been highest in the Queenstown, Centreville and Kent Island area. Volumes have

double on MD 213 and MD 304 between Centreville and US 301 because of increasing local development.

Regarding the construction of a MD 213 bypass, the plan states:

The State Highway Administration proposed the construction of a bypass for MD 213 around the east side of Chestertown in Kent County that would have its southern terminus in Queen Anne's County near the intersection of MD 213 and MD 544. However, this project has been dropped from the State's program because of local concerns about its possible impact on residential development, especially in the Kingstown area, and because they did not meet the Governor's Smart Growth initiatives.

Queen Anne's County is currently completing a new County Comprehensive Plan.

4.7 Kent County Comprehensive Plan, 2006

Transportation (pp. 52-53)
The Kent County Comprehensive Plan, as completed in 2006, sites "working with the Maryland Department of Transportation to improve the transportation infrastructure" as one of its goals. The strategy outlined in the plan involves the construction of the Chestertown Route 213 Bypass:

The current truck and agricultural equipment traffic over the Chester River Bridge and through Chestertown causes traffic congestion, safety hazards and adversely affects local scenic and historic resources. Heavy vehicle loads also cause structural deterioration of the bridge which results in increased maintenance costs and time. The proposed Route 213 Bypass is necessary to provide an alternative route for these vehicles and to mitigate the negative impacts of escalating roadway traffic. The intent of the bypass is to create a parkway with access limited to Route 291 and Hopewell corner

The county will encourage Queen Anne's County to support a bypass but will also work towards construction of a bypass between Routes 291 and 213. This project is a high priority among the County's transportation improvements.

4.8 Chestertown Comprehensive Plan, 2005

Many portions of the Chestertown Comprehensive Plan, completed in 2005, are pertinent to this feasibility study.

The following land use areas of focus of improvement are cited in the plan (pp. 9-10):

- North and East (north of MD 291): These are areas where the town wants to see a new limited access "parkway" bypass that would connect Hopewell Corner with the area around MD 213/MD 544 in Queen Anne's County.
- Queen Anne's County Areas: This area encompasses Kingstown and a portion of Chester Harbor. It also constitutes one of the Town's "gateways" and must be carefully nurtured. The Town does not want to see additional commercial sprawl along MD 213 between Kingstown and Schrader/Union Church Road.
- Scott's Point/Stepney: This will be developed to extend the character of the town's street grid, with high quality pedestrian environments, small parks and green spaces and a mix of residential and commercial development. This area would include a pedestrian trail linking Wilmer Park and Radcliffe Creek and the beginning of a rails-to-trails system behind and parallel to Cannon Street.
- High Street Extended Area: This will remain mixed residential / commercial, but will receive special design focus consistent with the area's importance as one of the Town's gateways. Re-design may incorporate a boulevard type modification of the street, possible roundabout at Radcliffe Mill and a pedestrian link to a stream valley park and the rails-to-trails system.
- Government Center/Washington Avenue Corridor: This will see commercial revitalization of the shopping center that currently encompasses Dollar General, Women in Need, Ellen's Restaurant, C-town Barbers and the Laundromat. Expansion of the Fire House and Government Center, streetscape improvements along Philosopher's Terrace and similar improvements along Washington Avenue from Washington College to MD 291 are also planned.
- Route 20 Gateway: This area provides for expansion of existing commercial and residential uses, with an emphasis on affordability. The intersection of Flatland Road and MD 20 will be developed as a gateway and any development around historic Lauretum will be consistent with that structure's character. Flatland Road will require redevelopment as an urban street.

Transportation (pp. 12, 83-84)

"Chestertown's No. 1 transportation priority is construction of a new Chester River bridge crossing in conjunction with a new limited-access parkway combining a linear park with a landscaped bike bath, from the intersection of MD 213 and 297 in Kent County to the intersection of MD 213 and 544 in Queen Anne's. Such a project would facilitate vehicular and pedestrian traffic in the Town, improve driver and pedestrian safety and help preserve the Town's Historic District from destructive traffic impact.

Washington Avenue traffic is now approaching gridlock and will only grow worse as the Town and surrounding counties grow. The new bridge crossing should accommodate pedestrians and bikers as well as automobiles."

"Closely related to the Bridge-Bypass priority is construction of a parkway type road beside the hike-biker trail from Stepney Station to Dixon Valve. Such a road, like the Bridge-Bypass would greatly alleviate traffic congestion on Washington Avenue, High Street and Cannon Street."

Appendix A – Historic Resources Element (pp. 119-120)
The need to protect and conserve Chestertown's historic resources is a fundamental, underlying concept to managing the current and future growth of the Town. Much attention and effort have been devoted to ensuring that current and future growth decisions reflect sensitivity to the need for compatible scale and character, particularly within the Town's designated Historic District, within the National Register of Historic Places District and areas in general proximity to those two districts.

It is the intention of the Town to expand the boundary of the Chestertown Historic District to coincide with the boundary of the larger National Register District.

5.0 Existing Conditions

5.1 Land Use

The town of Chestertown is located near the center of the study area as it is located where MD 213 enters Kent County from the south across the Chester River Bridge. Chestertown is one of five incorporated towns in Kent County. The majority of other incorporated towns and villages are located to the north and west of Chestertown.

Along the MD 213 corridor to the north of Chestertown (in the vicinity of its intersection with MD 297), much of the land adjacent to the roadway is designated as part of an Agricultural Priority Area. Closer to the town limits, the primary land uses are residential, commercial and institutional development with several commercial strips abutting the roadway.

Along MD 213 south of Chestertown, into northern Queen Anne's County, there is commercial development with low density residential developments (Chester Harbor, Kingstown) spread to the east and west along the river. This area, while not part of Kent County or Chestertown, appears to function as an extension of the Town.

Chestertown is the center for governmental and legal activity for Kent County as it is the County Seat. It is also a commercial and educational center for the region including the portions of northern Queen Anne's County. Two main employment centers are Washington College and Chester River Hospital Center which provide services and bring people into the Town.

Another important element of the study area is the Chestertown Historic District.

5.2 Bikeways

Within the project limits, several roadways are identified as bikeways:

- MD 213 is a Maryland State Highway Signed Bicycle Route through the entirety of the project limits.
- MD 20 is a Maryland State Highway Signed Bicycle Route from its intersection with MD 291/Morgnec Road westward.
- MD 291 is a State Highway Signed Bicycle Route west of its intersection with MD 213 and is a Local On-Road Bike Route east of its intersection with MD 213.

5.3 Existing State Highway Roadway Network

- MD 213 (Augustine Herman Highway/Washington Avenue/Maple Avenue/Church Hill Road)
  MD 213 is a state highway in Kent and Queen Anne's Counties running in a north-south orientation through the project area. North of the Chester River Bridge, MD 213 is in Kent County. South of the Chester River Bridge, MD 213 is in Queen Anne's County.

  Within the study area, MD 213 is a two-lane roadway with no access controls and generally 12 foot travel lanes with wide shoulders. Within Chestertown, the roadway varies between two lanes and three lanes with a center turn lane.

  North of its intersection with Malone Drive, it is a rural minor arterial. South of its intersection with Malone Drive it is an Urban Other Principal Arterial. At the northern project limits, the roadway is named Augustine Herman Highway. North of its intersection with MD 297, the speed limit is 55 MPH. From MD 297 to Scheeler Road the speed limit is 45 MPH. Once in the limits of Chestertown the roadway is named Washington Avenue with a speed limit of 40 MPH which reduces to 30 MPH south of Gibson Avenue.

The portion of MD 213 within the Chestertown Historic District, south of its intersection with Spring Avenue (MD 20) and north of the Chester River Bridge is called Maple Avenue and has a speed limit of 25 MPH. South of the Chester River Bridge, into Queen Anne's County, the roadway is called Church Hill Road.

- MD 291 (Morgnec Road)
  MD 291 is a state highway in Kent County beginning at its intersection with MD 20 along the northern border of the limits of Chestertown. It runs in a primarily east-west direction. Within the limits of Chestertown, the roadway is known as Morgnec Road and is classified as an urban minor arterial roadway with a speed limit of 30 MPH. As the roadway exits the limits of Chestertown, it is classified as a rural major collector with an eventual speed limit of 55 MPH. MD 291 connects Chestertown with Millington to the east and continues into Delaware to become DE 6.

- MD 20 (High Street/Chestertown Road)
  MD 20 is a state highway in Kent County connecting the towns of Chestertown and Rock Hall. To the west of its intersection with MD 514, MD 20 is known as Chestertown Road, a rural minor arterial roadway with a speed limit of 40 MPH. MD 20 turns into High Street within the limits of Chestertown. Within the limits of Chestertown, MD 20/High Street has a posted speed limit of 25 MPH and is classified as an Urban Other Primary Arterial roadway. MD 20 in the vicinity of MD 513 and MD 291 is one of the Chestertown's gateways. A "Welcome to Chestertown" sign appears when travelling eastbound just prior to MD 514.

- MD 289 (Quaker Neck Road)
  MD 289 is a state highway in Kent County beginning within the town limits of Chestertown at its intersection with Maple Ave. At this point, the roadway is named Cross Street and is an urban minor arterial with a speed limit of 25 MPH. Once south of the limits of Chestertown, the roadway is called Quaker Neck Road and is a rural major collector with a speed limit of 40 MPH.

- MD 297 (Worton Road)
  MD 297, also known as Worton Road, is a state highway in Kent County beginning with an intersection with MD 213 north of Chestertown. It is classified as a rural major collector and has a speed limit of 50 MPH.

- MD 514 (Flatland Road)
  MD 514, also known as Flatland Road, is a state highway in Kent County beginning within the town limits of Chestertown extending

to the northwest. Within the limits of Chestertown the roadway is classified as an urban minor arterial with a speed limit of 30 MPH. Outside the limits of Chestertown, the roadway is classified as a rural major collector with a speed limit of 50 MPH.

- MD 544 (McGinnes Road)
  MD 544 is a state highway in Queen Anne's County which runs in an east-west direction south of the Chester River. Its western terminus is an intersection with MD 213/Church Hill Road. Its eastern terminus is an intersection with US 301/Blue Star Highway. It has a 55 MPH posted speed limit.

6.0 Environmental Resources

The environmental resources were identified for the study based on the previous studies, supplemented and verified with GIS data and field visits. These features are illustrated in Appendix B. Many of the descriptions below originate from the 1986 EA.

In the event that this Feasibility Study progresses to a Project Planning Study, a complete survey of environmental resources would be completed in order to properly quantify any environmental impacts.

The study area lies on the eastern shore of the Coastal Plain physiographic province. Terrain in the area is generally flat to gently rolling with elevations ranging from sea level to approximately 80 feet above sea level.

6.1 Surface Waters

The study area is bisected by the Chester River, the dominant water source in the area with a drainage area of approximately 225 square miles. Other significant tributaries include Radcliff Creek, west of Chestertown, and Morgan Creek to the east of Chestertown. Several other unnamed tributaries and inlets are also located in the study area.

The Chester River and tributaries above Maryland 213 are designated as Class I (Water Contact Recreation). Below Maryland 213, the Chester River and its tributaries are designated as Class II (Shellfish Harvesting).

The segment of the Chester River between the confluence of the Chesapeake Bay and Chestertown is included on the Nationwide Rivers Inventory of Wild and Scenic Rivers, as compiled by the Department of the Interior.

6.2 Historic Resources

There are many historic resources within the project limits. There are two recognized historic district boundaries:

- Chestertown Historic District
- National Register of Historic Places District

A graphic appearing on page 120 of the Chestertown Comprehensive Plan illustrates these two districts. The town of Chestertown is in the process of expanding the limits of their Historic District to include more of the National Register of Historic Places District (per 01/05/09 Council Meeting).

In addition to the National Register of Historic Places District, there are several other National Register of Historic Places within the project limits:

- Airy Hill
- Bernice J. (skipjack)
- Brampton
- Chester Hall
- Chestertown Armory
- Chestertown Railroad Station
- Denton House (River House)
- Lauretum
- Middle, East and West Halls at Washington College
- Widehall

Any alternative which enters the Project Planning process and has potential impacts to historic resources may require the development of a Section 4(f) Document.

6.3 100-Year Floodplain

The 100-year floodplain within the study area is located adjacent to the Chester River. The floodplain limits are based on the Federal Emergency Management (FEMA) Flood Insurance Rate Maps (FIRM).

6.4 Wetlands

Wetlands areas were identified using the National Wetland Inventory (NWI) maps. Extensive areas of tidal and non-tidal wetlands are located adjacent to the Chester River and associated tributaries. Generally, wetlands located closer to the river are classified as Estuarian and are tidal in nature. These give way to successive stages of Palustrine emergents, scrub shrubs, and forested wetlands which become non-tidal in nature.

6.5 Parks

There is one park located within the study area adjacent to the end of Water Street on the southern side of Chestertown and located along Chester River. Two other parks were also identified along Round Top Road; however both parks are outside of the study area to the north of MD 213.

Any alternative which enters the Project Planning process and has potential impacts to park lands may require the development of a Section 4(f) Document.

6.6 Priority Funding Area (PFA)

A large portion of the study area is located within an existing Priority Funding Area (PFA) as designated by the Maryland Department of Planning. PFA's are existing communities and other local areas designated by local jurisdictions in accordance with Maryland Smart Growth Guidelines. The intent of the Smart Growth Guidelines, as established by the Neighborhood Conservation Act of 1997, is to limit sprawl by directing state funding for growth related projects to PFA's.

Any alternative which enters the Project Planning process and is outside of a PFA will require involvement with the Smart Growth Committee and an exception if it is to qualify under one of the provisions in the law.

6.7 Maryland Environmental Trust (MET) Easement

There are several types of protected lands within and near the study area including a Maryland Environmental Trust (MET) Easement.

The MET Easement within the study area is located to the south of Chestertown. MET Easements are defined as a statewide land trust operated by the Maryland Department of Natural Resources and governed by a citizen Board of Trustees. This program, which operates on donations of land easements, can play a significant role in protecting land from development.

6.8 Scenic Byway Designation

Within the project limits, several roadways are identified as National Scenic Byways. Both MD 213 and MD 20 (west of MD 291) are Byway Primary Routes in the Chesapeake Country National Scenic Byway, Maryland's first nationally designated scenic byway. Along these routes there are different destination types such as: History, Chesapeake Bay Gateway Network and Maryland Civil War Trails.

7.0 Chester River Bridge Conditions

At this time it has been determined that the Chester River Bridge is structurally sufficient, however is currently listed as functionally obsolete and is eligible for federal funding for bridge replacement. See Sections 7.3 and 7.4 for more information.

The determinations were made through utilizing multiple resources including:

- Supplemental Environmental Assessment for Contract No. K 346-101-271
  Maryland Route 213 relocated at Chestertown from MD Route 297 to MD Route 544
  Kent and Queen Anne's Counties, Maryland
  December, 1987 (date of signature)
- Bridge Inspection Report: Bridge Inspection and Remedial Engineering Division
  Bridge No. 14027, MD Route 213 over Chester River, Kent County, Maryland
  November 2007
- Underwater Bridge Inspection
  Bridge No. 1202700, MD 213 over Chester River
  December 21, 2007
- www.nationalbridges.com
- www.sha.state.md.us

7.1 Bridge Description

The Chester River Bridge (MD Bridge No. 14027 and NBI Bridge No. 100000140027010) and operator's house were originally built in 1930 and is 1,465'-0" between abutment back-walls. The bridge includes 41 spans which consist of a concrete deck supported by prefabricated concrete girders spanning between. The bascule span (over the navigable marine channel) consists of an open grid deck, concrete filled deck and concrete deck supported by a stringer / floor beam system. The bascule span is a double leaf rolling lift-type bridge operated from a control house located on the southwest corner of the bascule span.
- Bridge Inspection Report, 2007, pg. vi

The navigation channel accommodated by the Chester River Bridge has a horizontal clearance of 60' and a vertical clearance (with the span closed) of 13' – 11" MLW. With the span open, the vertical clearance is unlimited.
- Bridge Inspection Report, 2007, pg. v

The Chester River Bridge was rehabilitated in 1990, including widening with pile repairs and a complete superstructure replacement.
- Underwater Bridge Inspection Report, 2007, pg. summary

7.2 Functionally Obsolete Classification

Chester River Bridge is classified as Functionally Obsolete
Both the National Bridge Inventory website as well as the Maryland State Highway Administration website lists the Chester River Bridge as Functionally Obsolete. The Maryland State Highway Administration website defines Functionally Obsolete bridges as those that have deck geometry, frequent flooding, clearance or approach roadway alignment that no longer meets the criteria for the system for which the bridge is a part.
-www.sha.state.md.us/keepingcurrent/funobsoletebridges.asp

The major contributor to bridges in the State of Maryland listed as functionally obsolete is the inadequate bridge clear roadway width (lack of shoulders). The Chester River Bridge does not have shoulders and falls into this category.

7.3 Qualification for Federal Funding

Chester River Bridge Qualifies
According to the American Association of State and Highway Transportation Officials Standing Committee on Highways and Subcommittee on Bridges and Structures, federal aid eligibility with a local match is permissible for bridges with a Bridge Sufficiency Rating (BSR) of 50 or less and classified as Functionally Obsolete. According to the Bridge Inspection Report, 2007, Appendix C: Maryland State Highway Structural Inventory and Appraisal Report (SA&I), Form 7 of 8, the Chester River Bridge has a BSR of 50.

7.4 Structurally Deficient Ratings

Chester River Bridge is NOT Structurally Deficient
Bridge condition ratings are noted on a scale of 0-9 with a condition rating of 4 or less on any one of the following components; bridge deck including wearing surface, superstructure including all primary load-carrying members and connections, and substructure considering the abutments and piers; indicating a poor or worse condition and resulting in a classification of structurally deficient. The following table provides the Bridge Condition Rating Categories as defined by the Federal Highway Administration.

Table 1: Bridge Condition Rating Categories

Rating	Condition Category	Description
9	Excellent	
8	Very Good	
7	Good	No problems noted.
6	Satisfactory	Some minor problems.
5	Fair	All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.
4	Poor	Advanced section loss, deterioration, spalling, or scour.
3	Serious	Loss of section, deterioration, spalling, or scour have seriously affected the primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may be removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure	Major deterioration or section loss present in critical structural components, or obvious loss present in critical structural components, or obvious vertical or horizontal movement affecting structural stability. Bridge is closed to traffic, but corrective action may put back in light service.
0	Failed	Out of service; beyond corrective action.

- www.fhwa.dot.gov

The following ratings were given to the components of the Chester River Bridge based upon the Bridge Inspection Report and the Underwater Bridge Inspection Report:

Table 2: Chester River Bridge Ratings based on 2007 Inspections

Bridge Component	Bridge Inspection Report	Underwater Bridge Inspection Report
Deck	6	-
Superstructure	5	-
Substructure	5	6

Based on the ratings, neither report qualifies the Chester River Bridge as Structurally Deficient.

8.0 Concepts Developed for Feasibility Study

Initial concepts were developed for this Feasibility Study looking at all possible and potential ways to provide a connection across the Chester River. While some of the concepts presented were discussed as potentially having strong community opposition, all concepts were evaluated to determine their feasibility to meet the future needs of the project area and determine if they warranted further study through a Project Planning Study.

For the purposes of description, the concepts were broken into three basic areas, Downtown Concepts, MD 20 Connector Concepts, and MD 213 Access Controlled Boulevard Concepts. Each of the concepts is described below and is illustrated in Appendix C.

It was discussed during the development of the concepts proposing new crossing of the Chester River Bridge that fixed-span bridges are preferred due to the long-term operations and maintenance being lower than that of a draw-span bridge. Based on that, the Inter-Coastal Waterways requirement is an under-clearance on a minimum of 65'. Given that this under-clearance is much greater than the existing bridge (due to the draw-span), it was stated that a mast-height survey could be completed for the area to determine the necessary elevation of a proposed fixed-span bridge. All Concepts that include an option to "raise bridge elevation" reference the elevation required per the completion of a mast-height survey. Proposed bridge height will be determined through a mass height survey with review and approval by the U.S. Coast Guard, the governing authority on all navigable water.

8.1 Downtown Concepts

The downtown concepts are defined as those that provide direct connections to the downtown area of Chestertown. These include various options of utilizing the existing MD 213 and Chester River Bridge Crossing as well as providing parallel or near parallel structures to the existing bridge.

8.1.1 Concept 1: Pedestrian Bridge with Existing Bridge

Build a pedestrian bridge adjacent to the existing structure to create a complete transportation network.

After further evaluation this concept was dropped from further study.

8.1.2 Concept 2: Weight Restrictions on Existing Bridge

Provide weight restrictions on the existing bridge to limit the loads and potentially extend the life span of the existing bridge from a

structural perspective (not mechanical and/or electrical) for several years.

After further evaluation this concept was dropped from further study based on putting weight restrictions on this bridge would raise the level of concern over the existing condition of the bridge as well as there being no close detour route for trucks. In addition, the results of the previous Origin-Destination Study show that the majority of the truck traffic is destined for Chestertown. This concept may not actually extend the life of the bridge.

8.1.3 Concept 3: Rehabilitation of Existing Bridge

Similar to 1990, rehabilitate the existing bridge thereby extending the life of the structure for approximately 30 years. The previous rehabilitation was completed while maintaining traffic on the existing bridge.

This concept is recommended to be maintained for further study and as a basis to compare other concepts.

8.1.4 Concept 4: New Bridge to Existing Bridge

Similar to the previous Alternative 3-C, build a parallel two-lane bridge (at the same height) immediately south of the existing structure that meets all current design standards and remove the existing bridge.

This concept is recommended to be maintained for further study.

8.1.5 Concept 5: Companion Bridge to High Street
Option A: Equivalent Draw-Span to Existing Bridge
Option B: Raise Bridge Elevation

Provide a new connection from Old Bridge Road to High Street, the "main street" of Chestertown. This option would maintain the existing bridge as a second option so as not to over-extend High Street with through traffic.

Option B was immediately dropped from further evaluation due to the context sensitive nature of the existing bridge view-shed and concern over the proposed height necessary of a taller bridge to remove the draw-span in close proximity to the heart of Chestertown.

Option A was dropped from consideration after further evaluation based on concern over increased traffic along the pedestrian-friendly High Street that is the shopping center of the town. It was also recognized that this concept would have impact to the historic district.

8.1.6 Concept 6: New Bridge into Town
Option A: Companion Bridge
Option B: One-Way Pairs

Provide a new connection into Chestertown to the north of the existing bridge.

Early in the Feasibility Study process this option was evaluated based on removing the existing bridge but dropped due to the desire to retain that bridge because it serves as the known gateway for Queen Anne's County, Chestertown and Kent County.

Sub-option A was then evaluated as a companion bridge to the existing bridge. This option would provide a fixed-span bridge as determined by the completion of a mast-height survey. This sub-option was dropped.

Sub-option B was added based on meetings of the Study Team and proposed adding a new connection north of the existing bridge creating a one-way pair system with northbound traffic on the new bridge and tying into Spring Street and the existing bridge carrying southbound traffic from Spring Street to the south side of the bridges. This option would also be a fixed-span bridge at an elevation as determined by the completion of a mast-height survey. This option was also dropped from further consideration as it provides a solution to crossing the Chester River but still has congestion and confusion with in the heart of Chestertown.

8.2 MD 20 Connector Concepts

The MD 20 Connector Concepts are defined as those concepts that provide a connection to MD 20 (to the west of MD 213), one of the destination routes based on the 2007 Origin-Destination Study. Individuals utilizing this connection would then re-connect with MD 213 via MD 20, if so desired.

8.2.1 Concept 1: Follows Boundary of MET
Option A: Companion Bridge to Existing Crossing
Option B: Remove Existing Bridge

This concept would follow the boundary of the MET lands, skirting the stream and connect to MD 20. This concept was dropped based on having an additional concept that would provide the same basic route with less environmental impacts and concerns.

8.2.2 Concept 2: Uses Existing Roads
Option A: Companion Bridge to Existing Crossing
Option B: Remove Existing Bridge

Option A was recommended to be evaluated further.

Option B was dropped due to the desire to retain that bridge because it serves as the known gateway for Queen Anne's County, Chestertown and Kent County.

8.3 MD 213 Access Controlled Boulevard Concept

The MD 213 Access Controlled Boulevard Concept provides a new connection to the north of the existing bridge utilizing the SHA right-of-way in this area. The "boulevard concept" may have a lower speed limit and include pedestrian and bicycle facilities.

8.3.1 Option A: Companion Bridge to Existing Crossing

This Option would provide a new two-lane bridge with access control while maintaining the existing bridge.

This option is recommended to be evaluated further.

8.3.2 Option B: Remove Existing Bridge

This Option would build a four-lane bridge to cross the Chester River, and remove the existing structure.

This option was recommended to be dropped due to the desire to retain that bridge because it serves as the known gateway for Queen Anne's County, Chestertown and Kent County.

9.0 Traffic Analysis for Concepts

As part of the evaluation of concepts, traffic data was collected and analyzed. This included an assessment of the existing traffic volumes, development of travel demand forecasts for the concepts and analysis of the volumes.

9.1 Existing Traffic Volumes

Traffic counts were performed along MD 213 and High Street to gather existing traffic data. The data was gathered on MD 213 from MD 544 to MD 297 and along High Street from MD 289 to MD 514.

The traffic volume data showed that MD 213 through this area carries approximately 5,800 to 18,700 vehicles per day. The majority of the area has an average daily traffic (ADT) in the 14,000 to 17,000 vehicles per day range. The highest volume along MD 213 occurs south of the MD 291 intersection. The bridge across the Chester River has an ADT of approximately 17,000 vehicles per day with about 10% of the vehicles being trucks or buses. Most of the trucks are classified as light or medium. The light and medium trucks are 7.5% of the total traffic. The average daily traffic volumes along High Street range from 2,000 vehicles per day south of Cross St. to approximately 11,600 vehicles per day between MD 291 and MD 514. The highest volume cross street is MD 291. It has an ADT from approximately 11,000 to 13,500 vehicles per day. All the other crossroads carry less than 7,000 vehicles per day. The average daily traffic volumes for 2008 are shown in Appendix D.

The AM and PM peak hour volumes were developed for the study corridor. The highest volume occurs along MD 213 northbound south of MD 291 in the PM peak with over 900 vehicles in that direction. In general, volumes through the center of Chestertown are about 400 to 600 vehicles in both the AM and PM peak hour in both directions. The volumes over the Chester River Bridge are approximately 1,200 vehicles in the AM peak and 1,450 vehicles in the PM peak. The directional distribution is 58% northbound in the AM peak and 57% southbound in the PM peak hour. Traffic volumes along High Street through the center of town are approximately 150-400 vehicles per hour in each direction. The highest volumes along High Street are between MD 291 and MD 514 with approximately 650 motorists traveling northbound in the PM peak. The AM and PM peak hour volumes are shown in Appendix E.

9.2 Travel Demand Forecasts

Travel demand forecasts were developed in 2008 for the study area. These forecasts were calculated for the design year of 2030. The 2030 travel demand forecast volumes were produced by the Maryland State Highway Administration. The basis for the forecasts were to examine the population growth projected in the Delaware Department of Transportation demand model which includes Kent and Queen Anne's Counties in Maryland, review area development proposals and review the Comprehensive Plans for Chestertown, Kent and Queen Anne's Counties.

The forecasted volumes on MD 213 and High Street are lower than the previous forecasts that were developed as part of the MD 213 Corridor Needs Study. The changes are anticipated due to having more comprehensive traffic count coverage of the corridor, and improved forecasted growth percentages based on in depth review of the socio-economic and development data in the area.

The 2030 no build forecasts showed that traffic volumes are anticipated to increase to approximately 9,000 to 28,600 vehicles per day along MD 213 with the highest volumes being south of the MD 291 intersection. The traffic volume across the Chester River Bridge is expected to grow to approximately 26,000 vehicles per day. High St. volumes are projected to be from about 2,400 to 16,000 vehicles per day with the lower vehicles being toward the southern end of town and the higher volumes being between MD 291 and MD 214. These volumes are shown in Appendix D.

AM and PM peak hour volumes were also developed for the study area. The volumes across the Chester River Bridge are anticipated to grow to over 1,800 vehicles in the AM peak and over 2,200 vehicles in the PM peak hour. The directional distribution on the bridge is approximately 55% to 60% during both the AM and PM peak hours. In the northbound PM peak over 1,300 motorists are anticipated to approach the MD 291 intersection which is the highest volume location. High Street traffic volumes are anticipated to be to 200-400 vehicles in the peak hour in both directions. The northbound PM peak volume approaching MD 514 is expected to grow to almost 900 vehicles which is the highest volume section on High Street. The AM and PM peak hour volumes are shown in Appendix F.

Various concepts were developed to meet the future traffic demand in the study area. In order to evaluate these concepts travel demand forecasts were developed. The 2030 no build forecasts were used as a basis to reassign traffic to the concepts. Two other resources were utilized in the development of the concept travel forecasts. The first was an origin destination survey conducted in April 2007 of vehicles on MD 213 entering Chestertown from the north and south. The survey showed that:

- 77% Local Trips
- 23% Through Trips

The through trips were defined as entering from the south side of the Chester River Bridge or the north side of Chestertown at MD 297 and passed to the opposite MD 213 station or another station to the east or west. Of those locations the through trips continuing on MD 213 were the highest percentage (10%).

The second tool utilized to develop the concept traffic volumes was travel time runs. Travel time runs were performed in February 2009 to determine how long it would take to traverse various routes within the study area. The combination of these two sources was used with the base no build volumes to develop the AM/PM peak hour travel forecasts for each concept. It was assumed that if a new bridge was constructed along with maintaining the existing bridge, the new bridge would be designated MD 213 and would be the through movement.

9.3 Traffic Volumes for Concepts

Traffic volumes were developed for the year 2030 for six concepts and can be found in Appendix G. These concepts are where volumes are different than the no build condition. Other concepts such as rehabilitation of the existing bridge would produce the same volumes as the no build scenario.

- Downtown Concept 5A: Companion Bridge to High Street
  The companion bridge on High Street will allow for traffic to be split between the existing bridge and the new bridge. This concept will reduce traffic volumes along MD 213 and increase the number of motorists using High Street. It is anticipated that about 65% of the traffic crossing the Chester River would use the existing bridge while 35% would use the new bridge.

- Downtown Concept 6A: New Bridge into Town
  This concept will provide a new bridge to the north of the existing bridge and ties into Spring Ave. This will have very little influence on traffic volumes versus the no build condition. Only two existing intersections are impacted. These are at MD 213 @ Spring Ave. where the total volumes will be approximately the same as the no build condition but will be redistributed toward the new bridge and Maple Ave @ MD 291 which will experience a reduction in total traffic volumes through the intersection.

- MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge
  A new crossing to the south of the existing MD 213 Bridge is the plan for this concept. The new river crossing would then tie in to John Hanson Rd to Airy Hill Rd to MD 20. This new bridge would be in addition to leaving the existing bridge operational. The existing bridge is projected to still carry over 55% of the total traffic volume. The majority of traffic utilizing the new bridge will access MD 289 after crossing the Chester River with relatively light volumes continuing on John Hanson Rd to Airy Hill Rd. to MD 20.

- MD 20 Connector Concept 2: Uses Existing Roadway, Option B: Remove Existing Bridge
  This concept is the same as the previous except the existing bridge is removed. Traffic volumes along MD 289 between John Hanson Road and High Street increase significantly under this concept. This is due to the high proportion of traffic along MD 213 that is destined into center portion of Chestertown. Over 10,000 additional trips are anticipated to occur along this section of the roadway with this concept. Along John Hanson Road volumes are anticipated to be in the 300 vehicle per hour range in both directions. Traffic through Chestertown on Maple Ave will be greatly reduced. Traffic volumes along Washington Ave are much lower in the southern portion but will continue to grow as they approach MD 291.

- MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge
  This concept involves the construction of a new bridge to the north of the existing Chester River Bridge. A new roadway would be provided from just west of MD 544 to the river crossing. From there east, a new roadway would be constructed to tie into MD 213. The only other access point besides MD 213 will be at MD 291. The majority of traffic (approximately 55%) would remain on the existing bridge with the major users of the boulevard being motorists destined to continue as through trips or to the commercial areas near the MD 213/MD 291 intersection.

- MD 213 Access Controlled Boulevard Concept, Option B: Remove Existing Bridge
  The final alignment would be the same as the previous but remove the existing bridge. This will force all motorists to utilize the new bridge. With the only access point in Chestertown being at the MD 291 intersection, there is a desire of the majority of motorists to access Chestertown this will cause for a high volume turning movements to take place from the Boulevard to MD 291 westbound and from MD 291 westbound to Washington Ave southbound and the reverse movements. This will increase traffic volumes along MD 291 between the Boulevard and Washington Ave by approximately 15,000 vehicles per day.

9.4 Traffic Analysis Results

Traffic analysis was performed on the existing and forecasted traffic volumes for the various signalized intersections. The analysis was based on the Critical Lane Volume technique for intersections and the Highway Capacity Manual software for two lane roadways (bridge across Chester

River). The analysis was based on the existing lane configurations through the Chestertown area plus assumptions as to the possible lane configurations associated with the new bridge alternatives. These lane configurations are shown in Appendix H. The traffic analysis showed in general that most intersections operate at an acceptable level of service both in the existing, 2030 no build and 2030 build concepts as shown in Figures 4 - 11.

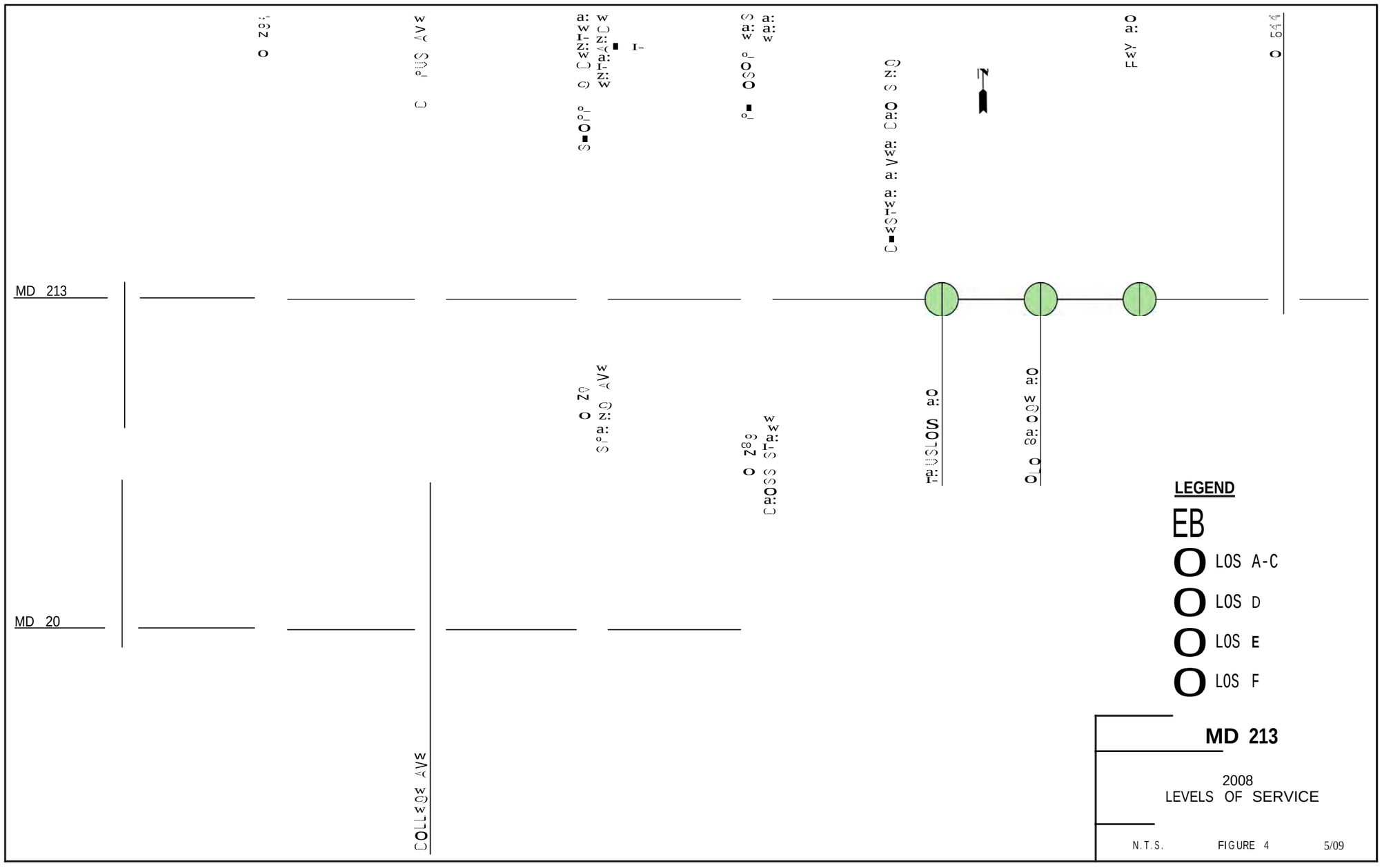
The following intersections operate at level service 'E' in the year 2030:

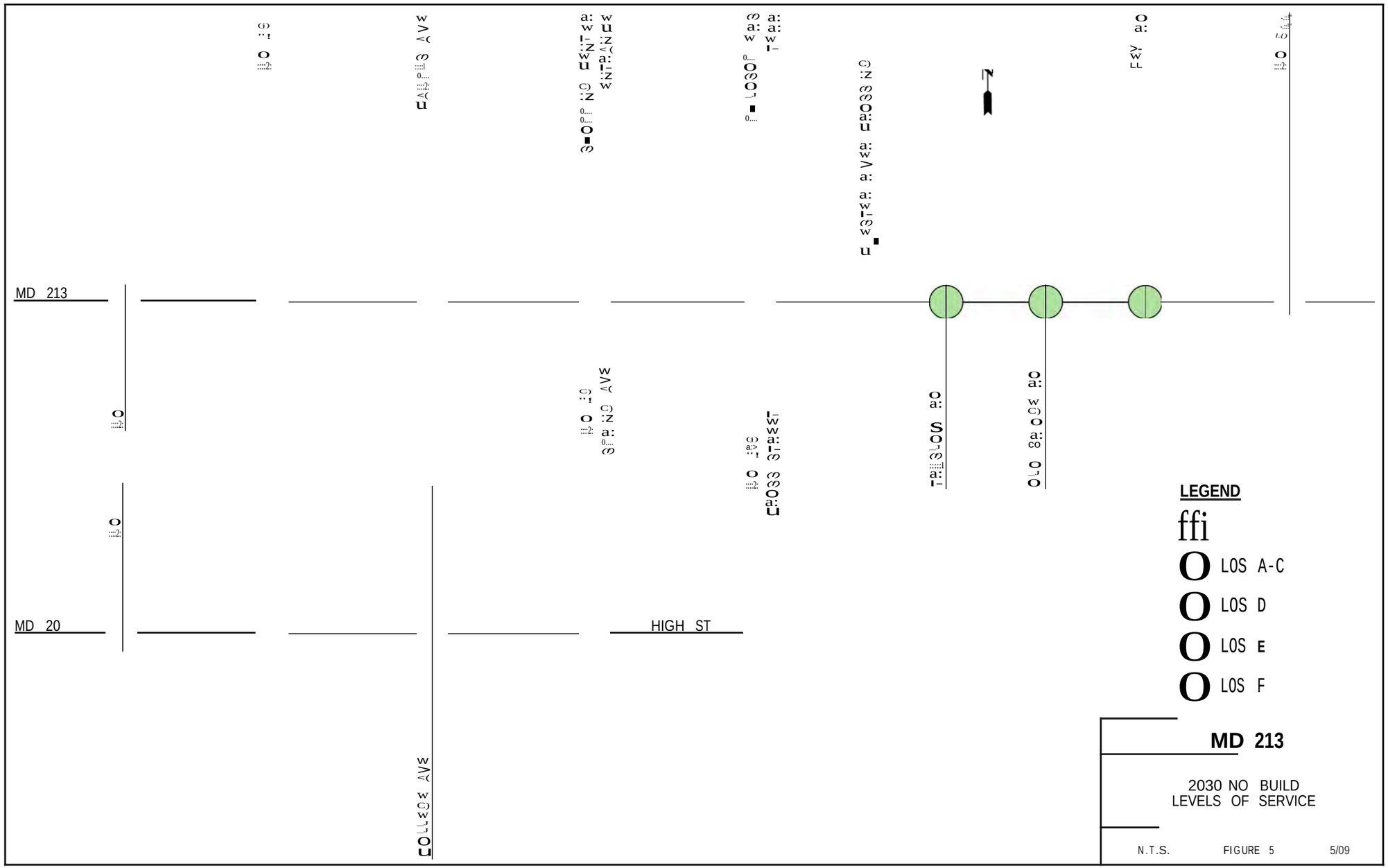
- MD 213 Boulevard @ MD 291 AM
  MD 213 Access Controlled Boulevard Concept, Option B: Remove Existing Bridge
- MD 213 @ MD 291 PM
  MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge

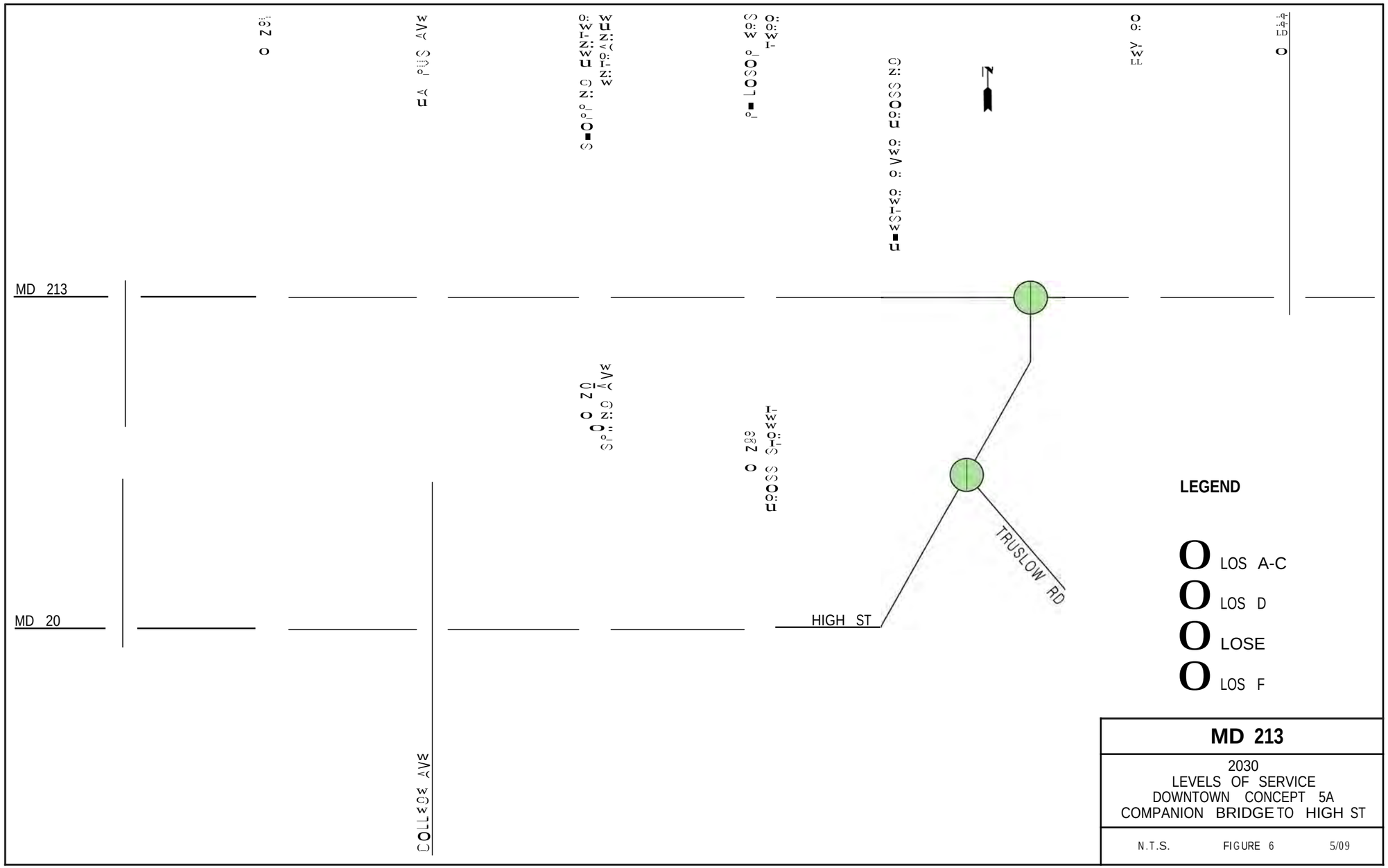
The following intersections operate at Level of Service 'F':

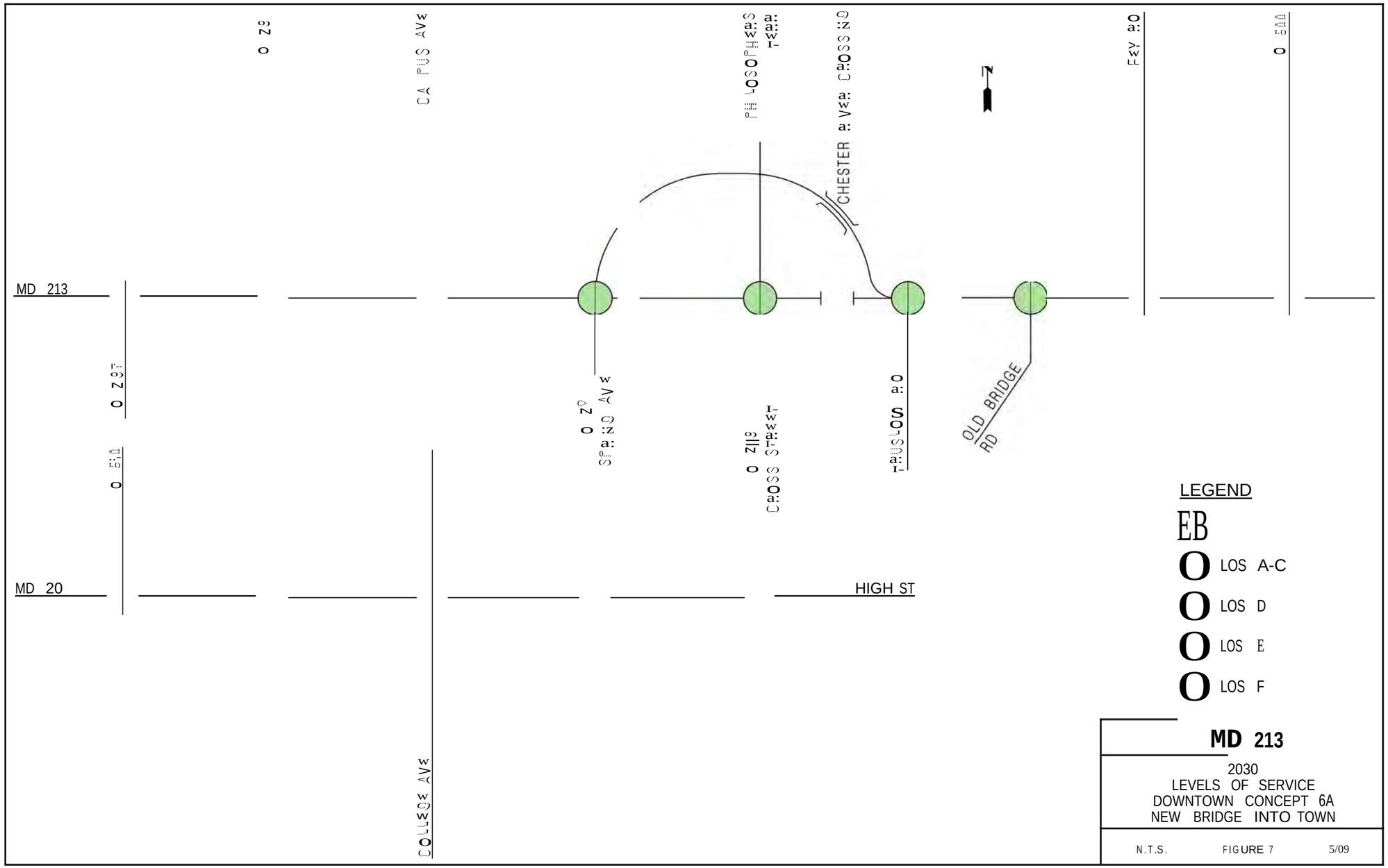
- MD 213 @ MD 291 PM
  No Build
  Downtown Concept 5A: Companion Bridge to High Street
  Downtown Concept 6A: New Bridge into Town
  MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge
  MD 213 Access Controlled Boulevard Concept, Option B: Removes Existing Bridge

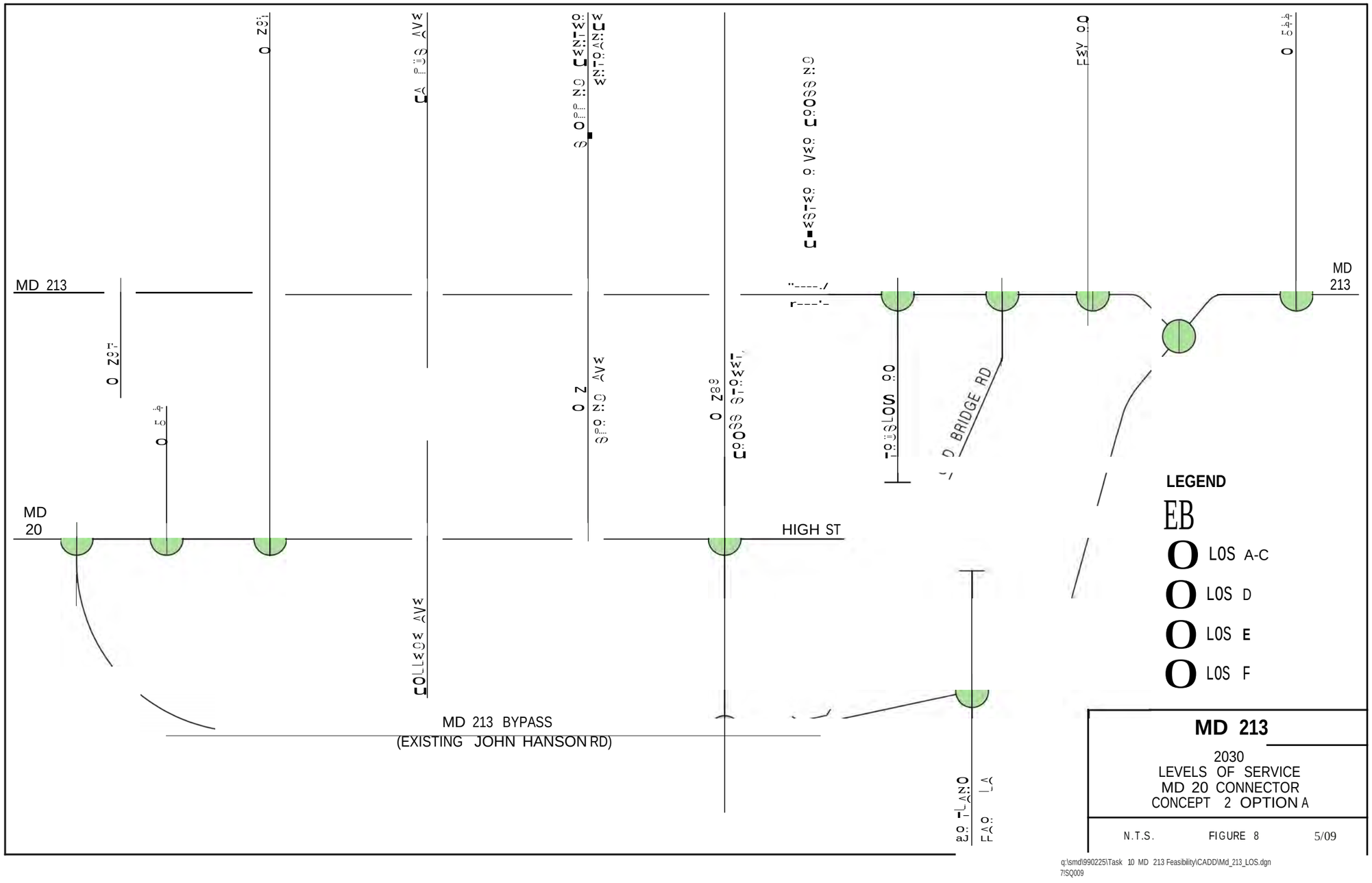
This page intentionally left blank.

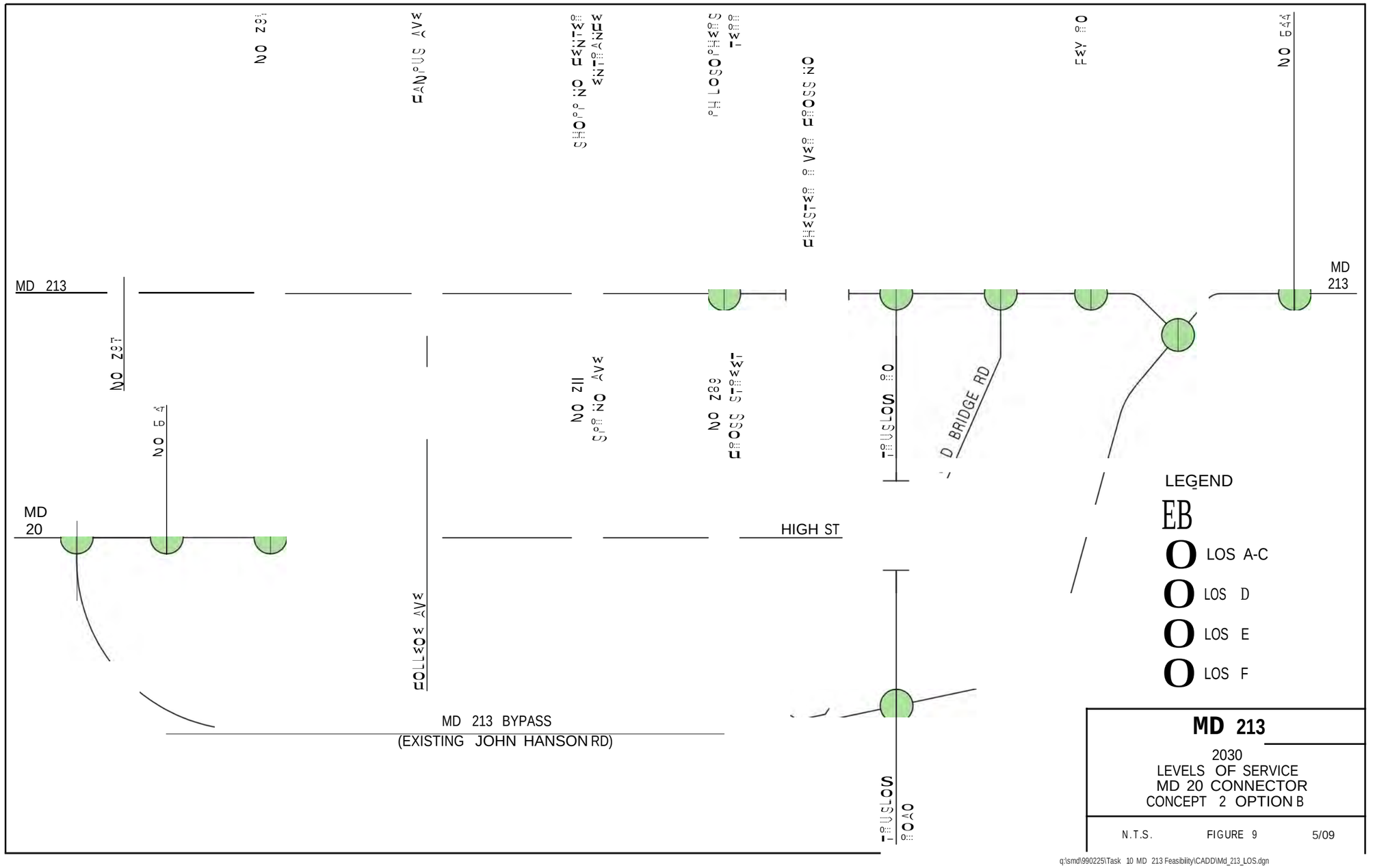

MD 213
MD 20
COLLEGE AVE
LEGEND
EB
LOS A-C
LOS D
LOS E
LOS F
MD 213
2008
LEVELS OF SERVICE
N.T.S.
FIGURE 4
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7M009

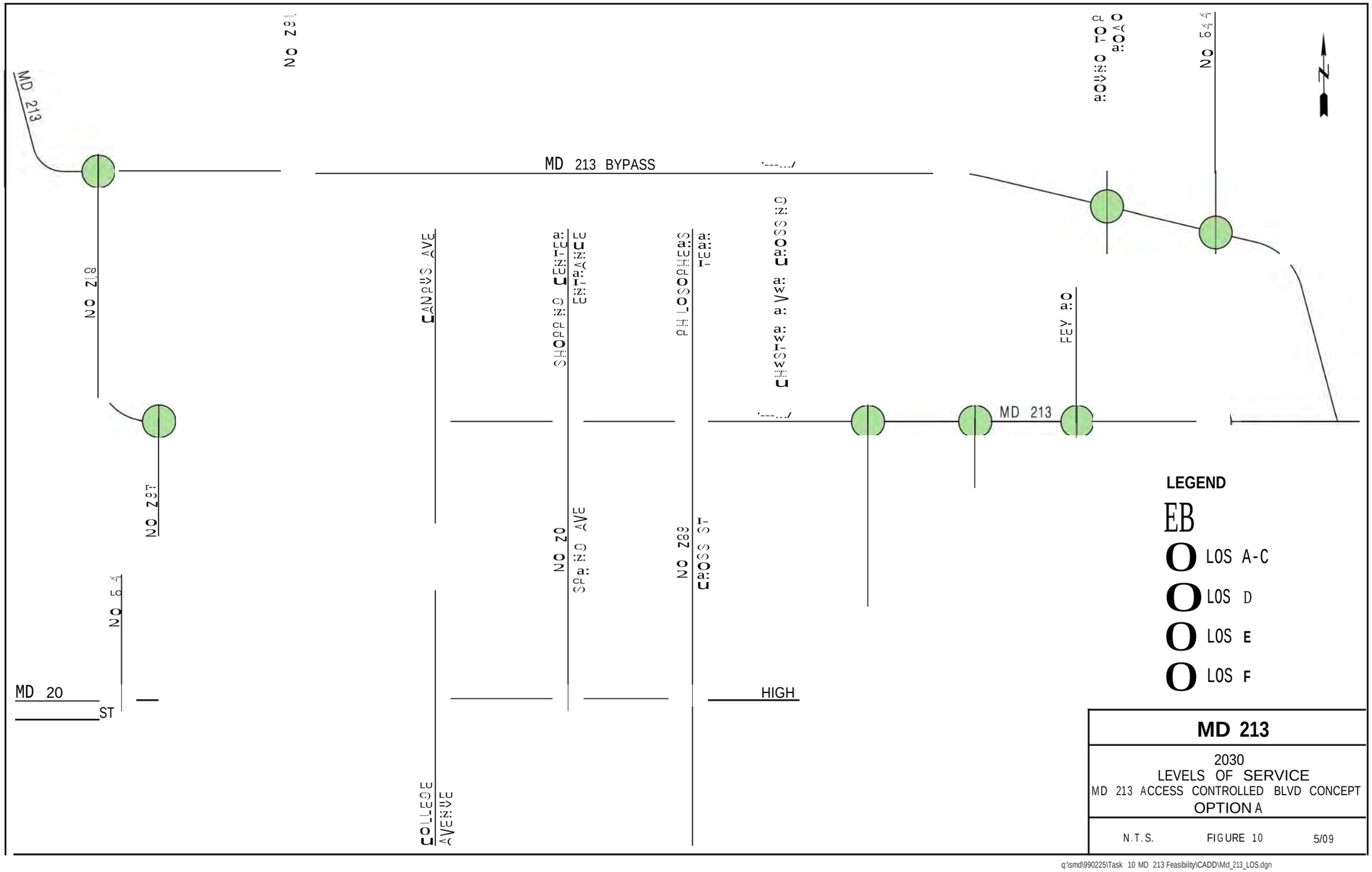

MD 213
MD 20
HIGH ST
LEGEND
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030 NO BUILD
LEVELS OF SERVICE
N.T.S.
FIGURE 5
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
1moo9

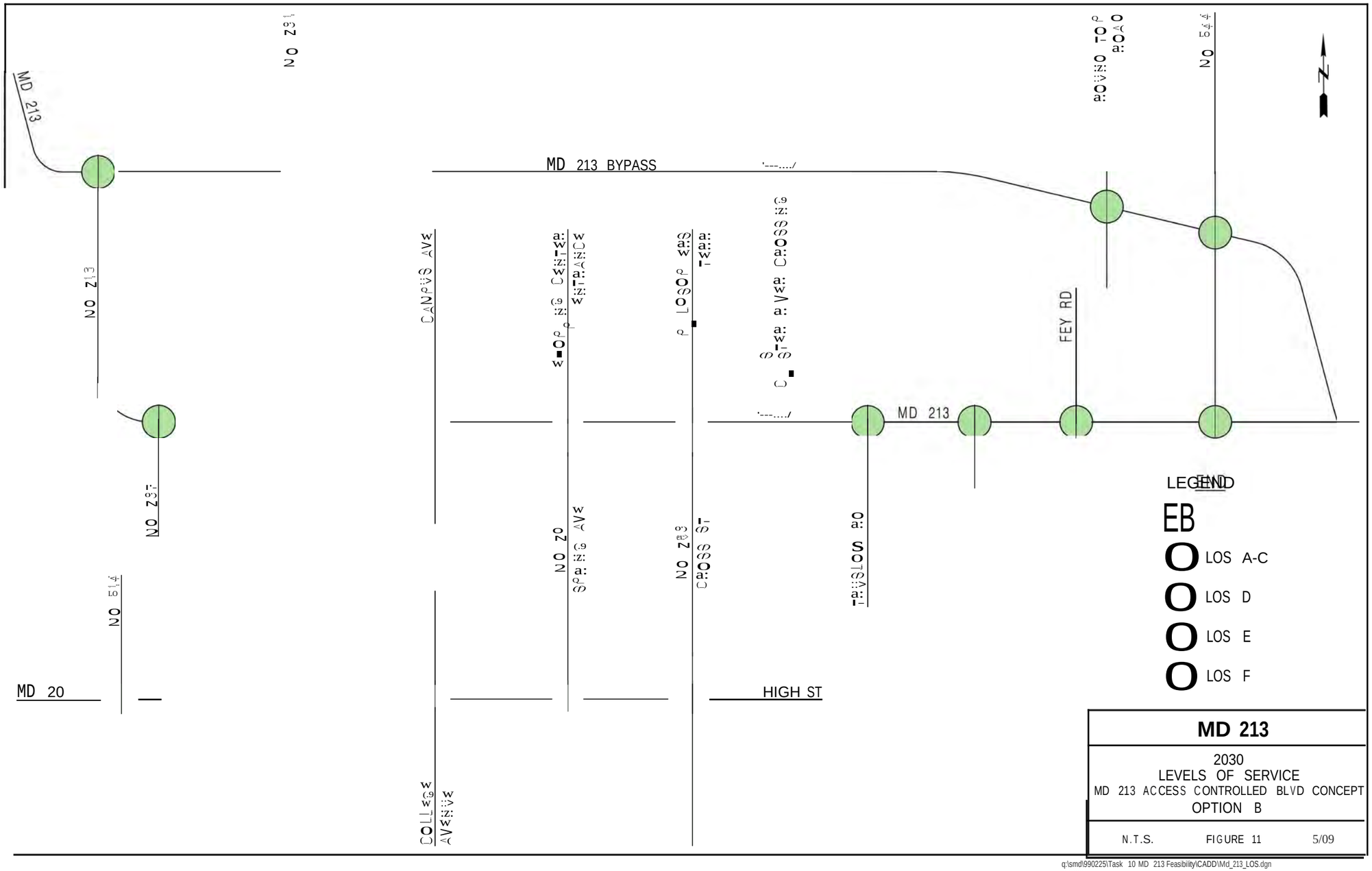

MD 213
MD 20
COLLEGE AVE
HIGH ST
TRUSLOW RD
LEGEND
LOS A-C
LOS D
LOSE
LOS F
MD 213
2030
LEVELS OF SERVICE
DOWNTOWN CONCEPT 5A
COMPANION BRIDGE TO HIGH ST
N.T.S.
FIGURE 6
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7!SQ009


MD 213
MD 20
HIGH ST
CHESTER
OLD BRIDGE RD
LEGEND
EB
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030
LEVELS OF SERVICE
DOWNTOWN CONCEPT 6A
NEW BRIDGE INTO TOWN
N.T.S.
FIGURE 7
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7JS2009


MD 213
MD 213
MD 20
HIGH ST
COLLEGE AVE
MD 213 BYPASS
(EXISTING JOHN HANSON RD)
BRIDGE RD
LEGEND
EB
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030
LEVELS OF SERVICE
MD 20 CONNECTOR
CONCEPT 2 OPTION A
N.T.S.
FIGURE 8
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7/SQ009


MD 213
MD 213
MD 20
HIGH ST
MD 213 BYPASS
(EXISTING JOHN HANSON RD)
D BRIDGE RD
LEGEND
EB
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030
LEVELS OF SERVICE
MD 20 CONNECTOR
CONCEPT 2 OPTION B
N.T.S.
FIGURE 9
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
?/-2009


MD 213
MD 213 BYPASS
MD 213
MD 20
ST
HIGH
COLLEGE AVENUE
SPRING AVE
CROSS ST
MD 213
LEGEND
EB
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030
LEVELS OF SERVICE
MD 213 ACCESS CONTROLLED BLVD CONCEPT
OPTION A
N.T.S.
FIGURE 10
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7:]2009


MD 213
MD 213 BYPASS
FEY RD
MD 213
MD 20
HIGH ST
LEGEND
LOS A-C
LOS D
LOS E
LOS F
MD 213
2030
LEVELS OF SERVICE
MD 213 ACCESS CONTROLLED BLVD CONCEPT
OPTION B
N.T.S.
FIGURE 11
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_LOS.dgn
7M009

Traffic analysis was performed for the existing and proposed bridges over the Chester River. The results were developed using two different methods from the Highway Capacity Manual software for two lane roadways. The first was analyzing the roadway as a Class I facility which is defined as motorists desire to travel this type roadway at relatively high speeds. It would also serve as major intercity route for long distance trips. Class II highways function as access routes with many short distance trips. With the majority of trips on Maryland 213 being to and from Chestertown this could be considered a Class II facility.

Table 3: MD 213 Bridge Segment Levels of Service and (V/C Ratio), Class II Highway

Concept	Existing Bridge		New Bridge	
	AM LOS**	PM LOS**	AM LOS**	PM LOS**
Existing	D (.51)	D (.43)	------	------
2030 No Build	E (.65)	E (.73)	------	------
Downtown Concept 5A: Companion Bridge to High Street	D (.45)	D (.53)	C (.27)	C (.26)
Downtown Concept 6A: New Bridge into Town	*-*	*-*	E (.64)	E (.73)
MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge	D (.36)	D (.43)	C (.30)	D (.32)
MD 20 Connector Concept 2: Uses Existing Roadway, Option B: Removes Existing Bridge	*-*	*-*	E (.65)	E (.73)
MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge	D (.39)	D (.44)	*D (.31)	*C (.27)
MD 213 Access Controlled Boulevard Concept, Option B: Removes Existing Bridge	*-*	*-*	*E (.64)	*E (.73)

* A travel speed of 55 mph was utilized for the MD 213 Access Controlled Boulevard Concept (Options A & B), versus 45 mph used for the other three alternatives. The variation in travel speeds was due to the assumed operations of the facility and the proximity of signalized intersections on either side of the bridge in the MD 213 Access Controlled Boulevard Concept versus the other concepts.

- Results are not provided for the Existing Bridge under this concept because it assumes bridge removal.

** LOS for Class II Highways is based on Percent Time-Spent-Following.

10.0 Recommendations

Based on input from the Study Team which included evaluating traffic analysis, existing and future land, environmental uses as well as many other components as described below, recommendations have been provided that include a Study Team consensus of options to move forward into a Project Planning Study as well as additional studies to be completed.

At this time, Queen Anne's County has requested that Resolution 07-23 be included as an appendix to this report stating their concerns with previous concepts under consideration as well as their intention to continue to coordinate efforts with Kent County, Chestertown and the Maryland State Highway Administration. Refer to Appendix K for complete text of this resolution.

In addition, the town of Chestertown has requested that it be noted that the current bridge structure has become an icon of Chestertown and analysis should include the cultural and commercial implications to businesses and institutions which use the waterfront view-shed, including the existing Chester River Bridge, as a part of their logo; one example being the Chester River Health System. Also, given the historical, economic and cultural connections between both sides of the river, residents in proximity to any additional upriver crossing should be given convenient and maximized access to any such crossing. This would also have significant implications for emergency services to Queen Anne's County.

As mentioned, various components were used to discuss the different concepts developed. These components are as follows:

- Provide Direct Roadway Network (ease of travel)
  This criterion addressed the ease at which a person could travel both through on MD 213 as well as access the destination of Chestertown with minimizing the potential circuitous routes.

- Emergency Services
  The emergency services (Volunteer Fire Station, Ambulances and Hospital) identified the location of where the emergency services would be originating from as well as the ease in which they could get to an incident and / or the nearby Hospital.

- Address Life-Span of Bridge
  Each concept evaluated how the proposed condition would affect the life-span of the bridge as well as understanding the overall maintenance of traffic for rehabilitating the bridge with the proposed concept in place (i.e. a second crossing of the Chester River would allow for greater ease in rehabilitating the existing bridge).

- Traffic Analysis
  Traffic analysis was another consideration for the various concepts.

- Pedestrian / Bicycle Connection
  With all concepts proposed to have a pedestrian / bicycle connection as a component within it, this component became a differentiating factor between the proposed concepts and a No Build condition.

- Minimize Environmental Impact
  The concepts were evaluated based on the magnitude of impact to the various environmental features that it traversed.

- Minimize Impact to Historic Areas
  Impact to the historic resources and district were evaluated.

- Minimize Community Impacts
  The concepts were evaluated based on the potential community impacts such as impeding access to and from communities and neighborhoods and the overall context sensitivity of the concepts to the built community (i.e. High Street as a pedestrian-oriented center).

- Existing Land-Use Compatibility
  Each concept was evaluated based on how well it fit within the existing land uses of the area the concept was traversing.

- Cost
  Cost estimates for each of the concepts recommended to be maintained for future study were prepared based on Maryland State Highway Administration standards for a feasibility study. The total cost range for each concept is summarized in Table 4.

All of the concepts to be considered for further evaluation in a Project Planning Study are to include the following:

- Provide pedestrian and bicycle facilities
- Provide traffic calming measures
- Maintain the existing bridge as a fixed-span or draw-bridge (additional studies will be required to determine the future need of the draw-bridge in comparison with the maintenance and operation cost)
- Evaluate context sensitive solutions addressing environmental resources and community land uses

The Concepts being recommended to be evaluated during a Project Planning Study are as follows and are illustrated in Appendix J:

- Downtown Concept 3: Rehabilitation of Existing Bridge
- Downtown Concept 4: New Two-Lane Bridge Parallel to Existing Bridge
- MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge (and maintain existing bridge)
- MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge (and maintain existing bridge)

- No Build
  This alternative is used as a comparison with all NEPA Planning Studies.

In addition to carrying these concepts forward, this Study Team has recommended the following studies to be completed to ensure due diligence and a complete understanding of the implications of these concepts as they progress to alternatives:

- Complete a mast-height survey at the draw-bridge and marina to determine the receiving height for any proposed fixed-span bridge
- Complete further traffic counts that include seasonal and weekend periods
- Develop a SYNCHRO traffic model to better understand the traffic flow
- Complete an analysis on the economic impact, emergency services, and community if the crossing is closed (based on life-span of the bridge). Additionally, a similar analysis should be completed for the Rehabilitation of Existing Bridge Concept. Concern was identified by several of the Study Team members of impacts during construction with this concept.
- Develop a comprehensive stakeholders list for consultation throughout the project planning study. At a minimum, the stakeholders list should include representation from the following:

  - Queen Anne's County
  - Kent County
  - Chestertown Mayor and Council
  - Washington College
  - Chester River Health System
  - Chester River Association (CRA)
  - Chestertown Historic District Commission
  - Chester Harbor Property Owner's Association
  - Heron Point
  - Schooner Sultana

Presentations were made to the elected officials of the preliminary findings of the Feasibility Study. A meeting was held on October 6, 2009 for the Kent County Commissioners and Town of Chestertown and a meeting on October 13, 2009 for the Queen Anne's County Commissioners. At each meeting, the following materials were presented:

- Review of Feasibility Study Goals
- Project Background
- Concepts
- Preliminary Recommendations

At these presentations, preliminary cost estimates were not available. There was a general consensus that the Purpose and Need developed in 1986 was no longer valid and the Feasibility Study Goals were appropriate. Individual comments on the various concepts were discussed and it was reiterated that the Feasibility Study was not to select an alternative but provide guidance as the project moves into detailed project planning. A general concurrence was achieved on the Study Team's recommendations for the concepts to be further evaluated in detailed project planning. Representatives of Queen Anne's County requested that a joint meeting be arranged to further discuss the findings of the Feasibility Study.

Table 4: Preliminary Cost Estimates for Concepts Recommended to be Maintained for Future Study

Concept	Total Cost Range (in millions)*
Rehabilitation of Existing Bridge	$40 - $45
New Bridge Parallel to Existing Bridge (Fixed Span)	$75 - $80
New Bridge Parallel to Existing Bridge (Movable Span)	$95 - $100
MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge to Existing Crossing	$480 - $490
MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge	$630 - $640

*based on 2009 dollars

Notes:

- These cost estimates have been completed on a cost per mile basis utilizing alternate methods for this Feasibility Study.
- Preliminary Cost Estimates do not include right-of-way costs.

This page intentionally left blank.

CHESTER RIVER BRIDGE CROSSING FEASIBILITY STUDY

From McGinnes Road to Worton Road
Queen Anne's County and Kent County, Maryland

APPENDICES

Prepared for:
Maryland Department of Transportation
State Highway Administration

January 2010

Appendix A: Previous Alternatives Studied

Appendix B: Environmental Resources

Appendix C: Concepts Evaluated

Appendix D: Traffic Memorandum

Manin O'Malley. Go''''''''' | SMA Stata · J]lv l .lohn D. rorca:t, *Sec.-.:wr;*
Anthony G. Bro-..11.*l.J. C-o l'r¤vi-* Administr.ition rJ Neil J. Pedersen. *Administro:o,..*
Maryland Department of Transporiaiion

MEMORANDUM

TO: Mr. Jim Thompson
Assistant Division Chief
Regional and lntermodal
Planning Division

ATTN: Mr. James E. Dooley, Jr.
Regional Planner
Regional and lntermodal
Planning Division

FROM: Bruce M.Grey
Deputy Director
Office of Planning and
Preliminary Engineering

DATE: June 24, 2008

SUBJECT: MD 213 Chester River Crossing Feasibility Study-Traffic Data
SH.A Project Number-SP082B43
Kent and Queen Anne's Counties

We are submitting the traffic data you requested for conducting this feasibility study. This data includes peak hour volumes, Average Daily Traffic (ADT) volumes, CLV intersection level-of-service (LOS), and HCM link LOS for existing (2008) and 2030 No-Build conditions.

The peak hour and ADT volumes for 2008 and 2030 are included on the attached stick figure diagrams. Existing traffic was developed using recent traffic counts. Forecasts for 2030 were developed by examining population growth projected in the regional travel demand model provided by DeiDOT, review of area development proposals, and a review of Comprehensive Plans for Chestertown, Kent County. and Queen Anne's County. For purposes of our traffic forecasts and level-of-service analyses, it was assumed that the No-Build condition for MD 213 would have the same roadway configurations (number of lanes, intersection geometry, etc.) as exists today.

Both existing and forecasted volumes for MD 213 are lower than previously developed in 2006 for the Needs Study for some portions of the corridor. For example, the MD 213 Corridor Needs Study showed 2006 and 2026 ADT volumes on MD 213 south of MD 291 of 22,000 and 40,000, respectively. Our current numbers for 2008 and 2030 show 18,700 and 28,600. This is due to more comprehensive coverage of new intersection count data through the corridor and improved forecasted growth percentages (now 1.5%-2% instead of 3% annual gr0\\1h) based on further review of socio-economic and development data.

Mr. Jim Thompson
Page Two

The following is a summary of the result of the CLV LOS analyses that were perfonned for the intersections in the study area, with the LOS and V/C ratio shown for each. Currently, all intersections are operating at a LOS B or better in both the morning and afternoon peaks. By 2030, it is expected that all intersections will operate at a LOS C or better, with the exception of the MD 213 intersections with MD 289 and MD 291 in the afternoon peak hour.

CLV - LOS and V/C Ratios for Area Roadways

Intersection	Existing Conditions (2008)		No-Build (2030)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
MD 213 at MD 544	A (0.44)	A (0.46)	B (0.66)	B (0.70)
MD 213 at Fey Road	A (0.51)	A (0.48)	C (0.74)	B (0.69)
MD 213 at Old Bridge Road	A (0.49)	A (0.50)	B (0.72)	C (0.73)
MD 213 at Truslow Road	A (0.50)	A (0.52)	C (0.73)	C (0.76)
MD 213 at MD 289	A (0.43)	A (0.58)	B (0.65)	D (0.88)
MD 213 at Spring Avenue	A (0.36)	A (0.46)	A (0.55)	B (0.68)
MD 213 at Campus Avenue	A (0.37)	A (0.54)	A (0.53)	C (0.78)
MD 213 at MD 291	A (0.48)	B (0.69)	B (0.69)	F (1.00)
MD 213 at MD 297	A (0.35)	A (0.36)	A (0.48)	A (0.48)
High Street at MD 289	A (0.26)	A (0.34)	A (0.35)	A (0.48)
High Street at Spring Avenue	A (0.24)	A (0.26)	A (0.29)	A (0.31)
High Street at College Avenue	A (0.26)	A (0.31)	A (0.33)	A (0.38)
MD 20 at MD 291	A (0.35)	A (0.40)	A (0.47)	A (0.53)
MD 20 at MD 514	A (0.47)	A (0.42)	B (0.63)	A (0.60)

The following chart is a summary of the HCM analyses for the roadway links in the project area, with both the LOS and V/C ratios displayed. The Two-Lane Highway methodology for rural highways was used in this analysis. As the LOS from this methodology is based on the average travel speed and delay of vehicles on the roadway, the existing low speed limits for these roadways through Chestertown, in addition to 100% "no-passing" zones and numerous access points, generally made a LOS E the best LOS possible regardless of traffic volumes. Therefore, the V/C ratios may be a more meaningful measure to look at when comparing sections and years.

Mr. Jim Thompson
Page Three

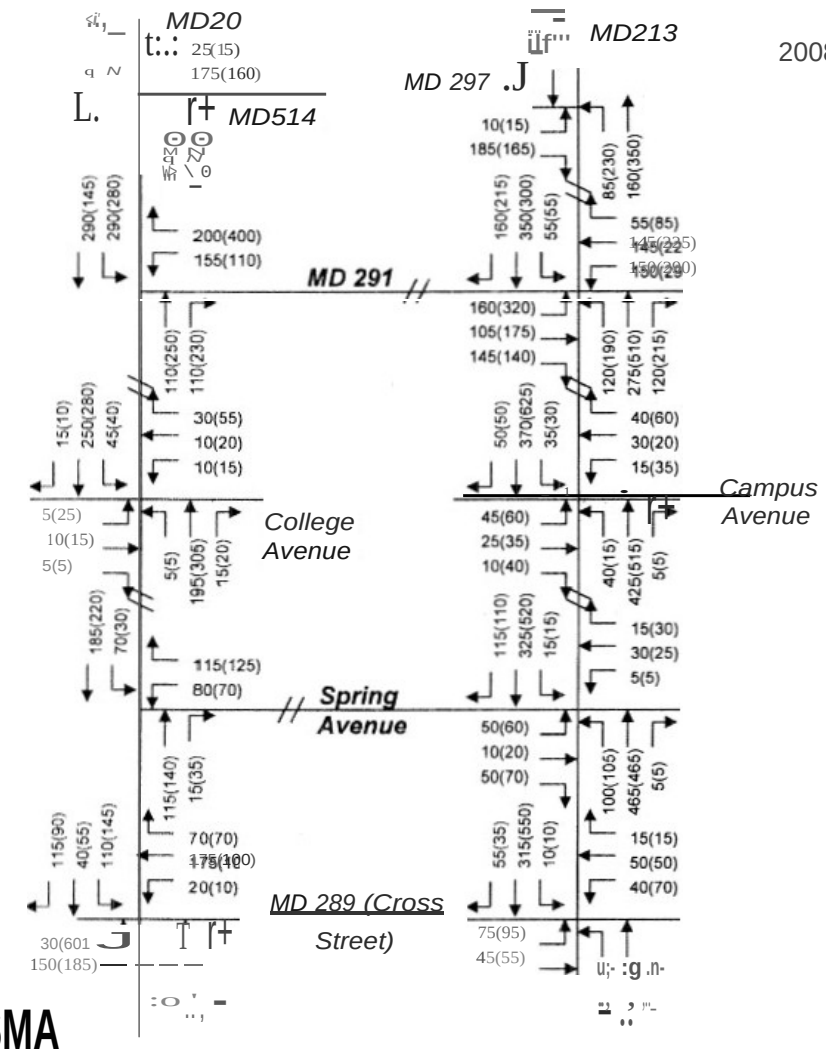
HCM- LOS and V/C Ratios for Area Roadways

Roadway Section	Existing Conditions (2008)		No-Build (2030)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
MD 213 - MD 544 to Chester River	E (0.44)	E (0.51)	E (0.65)	E (0.74)
MD 213 - Chester River to MD 289	E (0.43)	E (0.51)	E (0.65)	E (0.78)
MD 213 - MD 289 to N. of Campus Ave.	E (0.35)	E (0.42)	E (0.53)	E (0.64)
MD 213 - N. of Campus Ave. to MD 291	E (0.41)	E (0.58)	E (0.61)	E (0.87)
MD 213 - MD 291 to Washington Sq.	E (0.37)	E (0.52)	E (0.55)	E (0.77)
MD 213 - Washington Sq. to MD 297	E (0.25)	E (0.33)	E (0.33)	E (0.46)
High Street - MD 289 to College Avenue	E (0.18)	E (0.22)	E (0.22)	E (0.28)
High Street - College Avenue to MD 291	E (0.24)	E (0.26)	E (0.29)	E (0.33)
MD 20 - MD 291 to MD 514	E (0.32)	E (0.38)	E (0.42)	E (0.51)

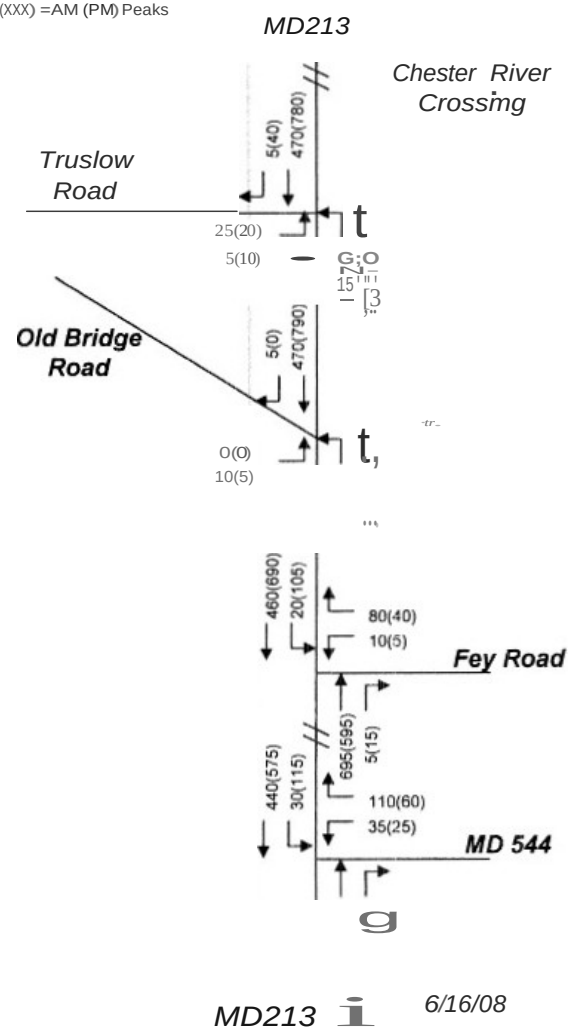
If you have any questions on this data or require further information, please contact the writer or Robert Piazza at 410-545-5645.

FOR:
Scott Holcomb
Travel Forecasting Section
By: Project Planning Division

Attachments
cc: Mr. Robert Kiel (with peak hour and ADT volume attachments)



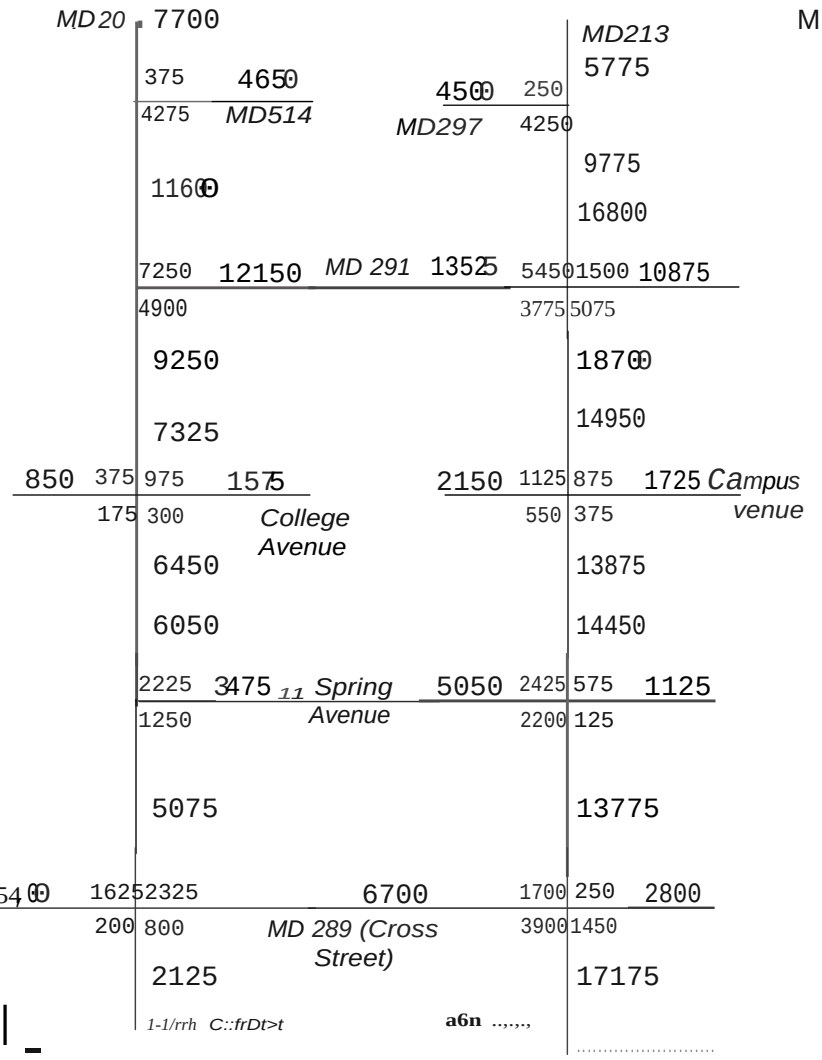
MD 213 Corridor
2008 Peak Hour Volumes
(XXX) =AM (PM) Peaks



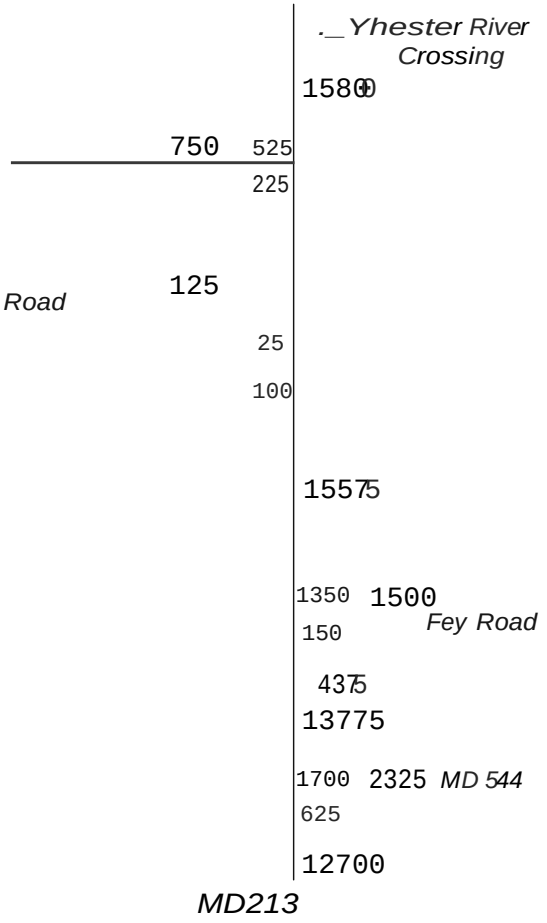
SMA

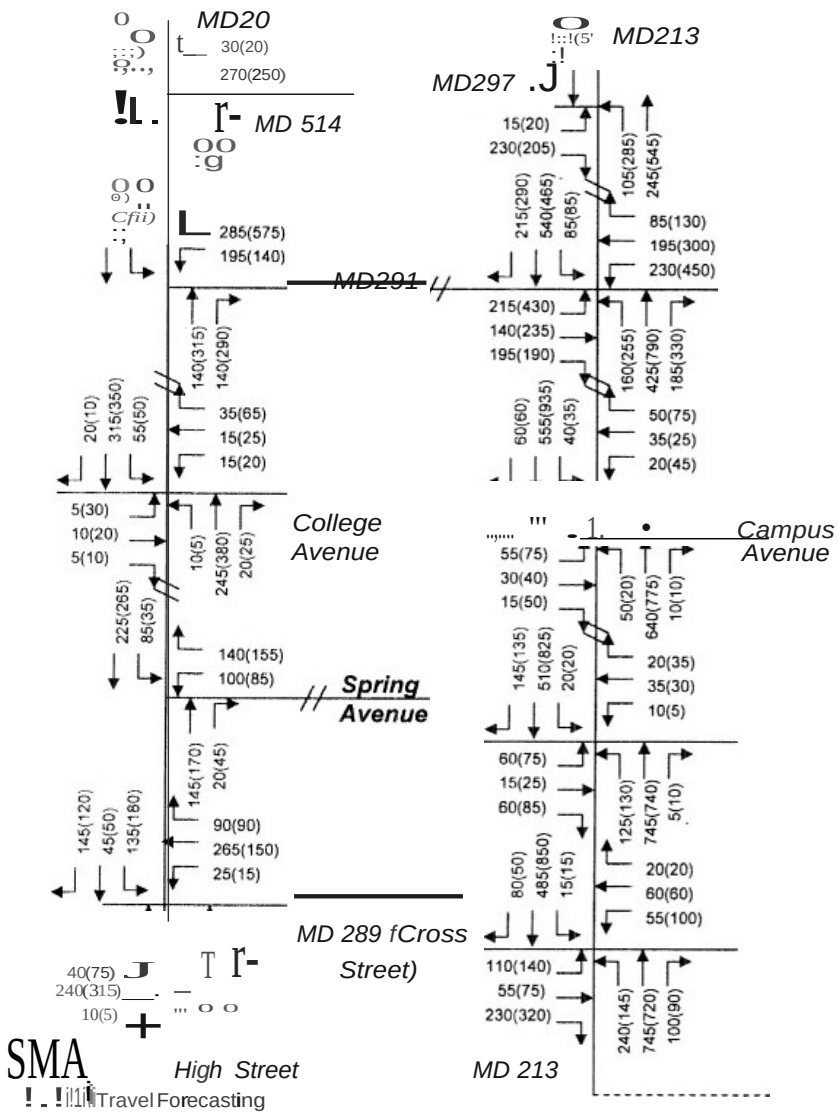
MD213

6/16/08



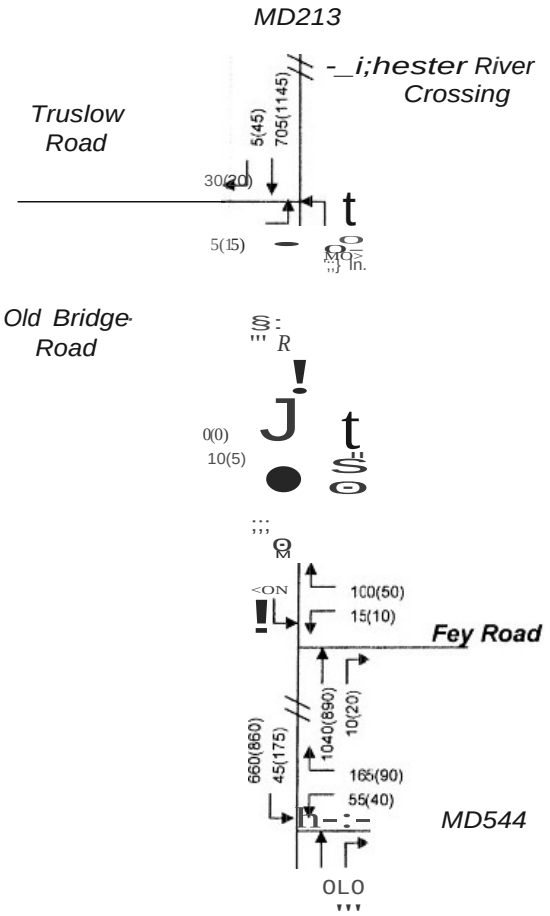
MD 213 Corridor





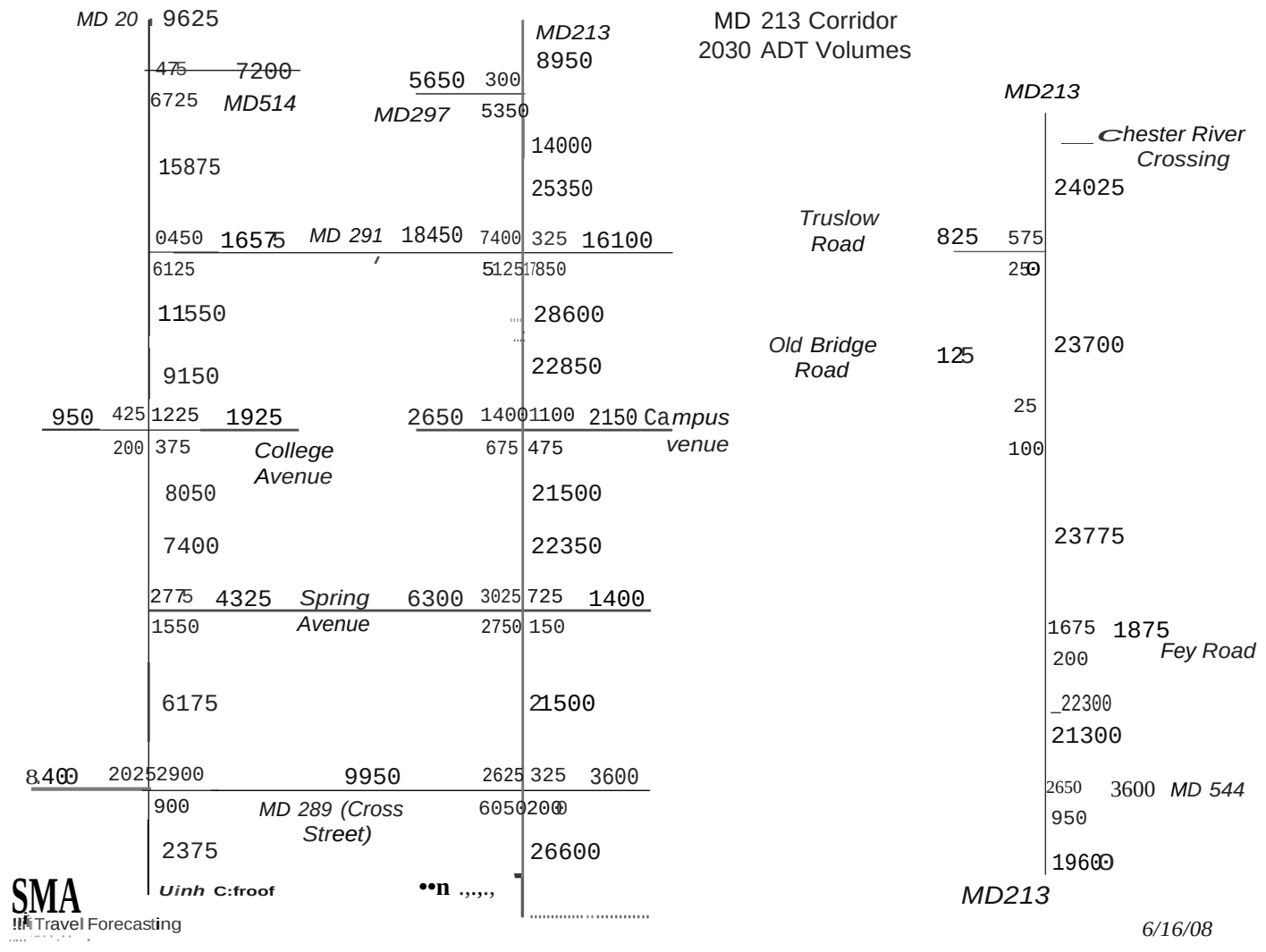
MD 213 Corridor
2030 Peak Hour Volumes

XXX (XXX) = AM (PM) Peaks

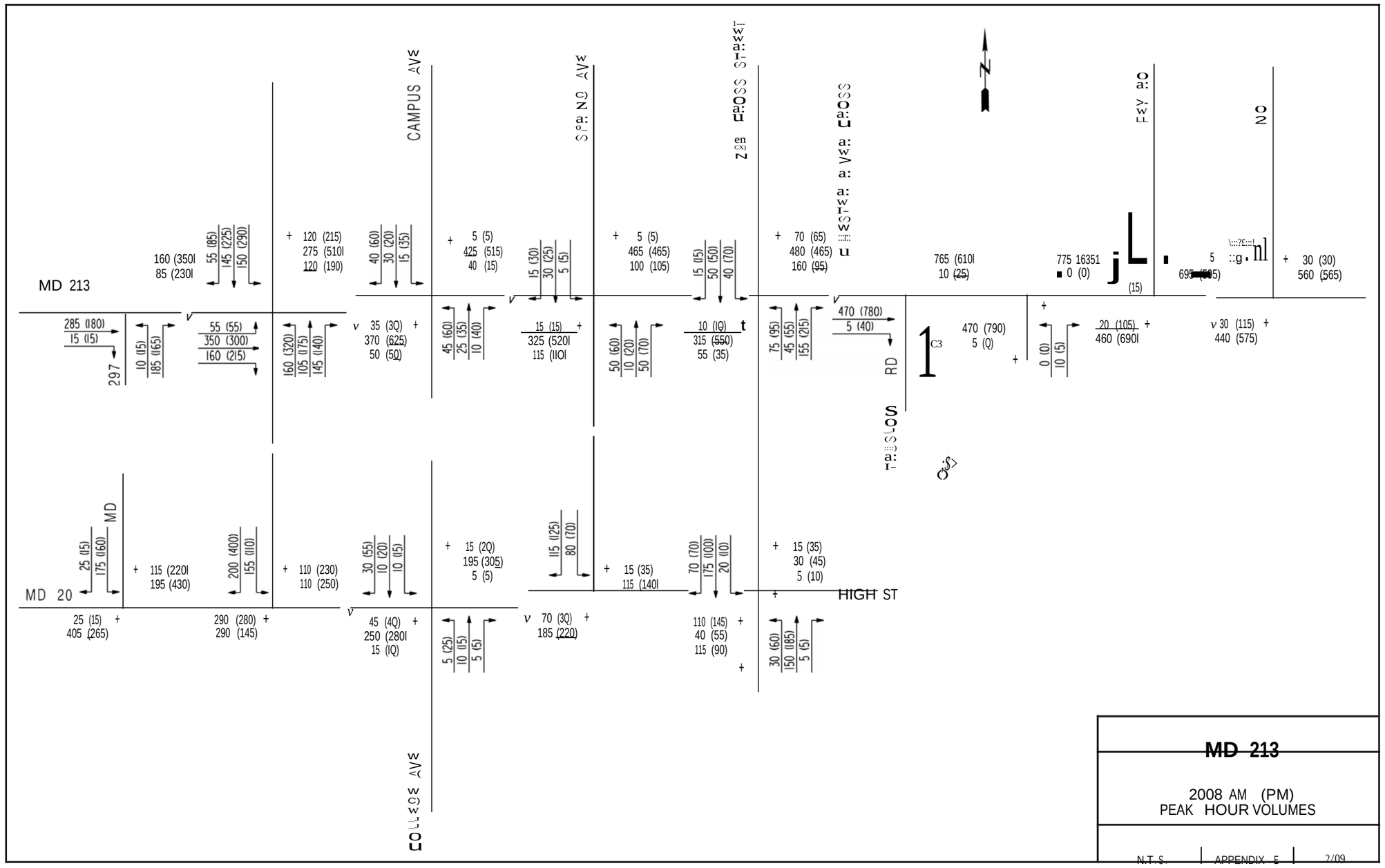


SMA Travel Forecasting

6/16/08

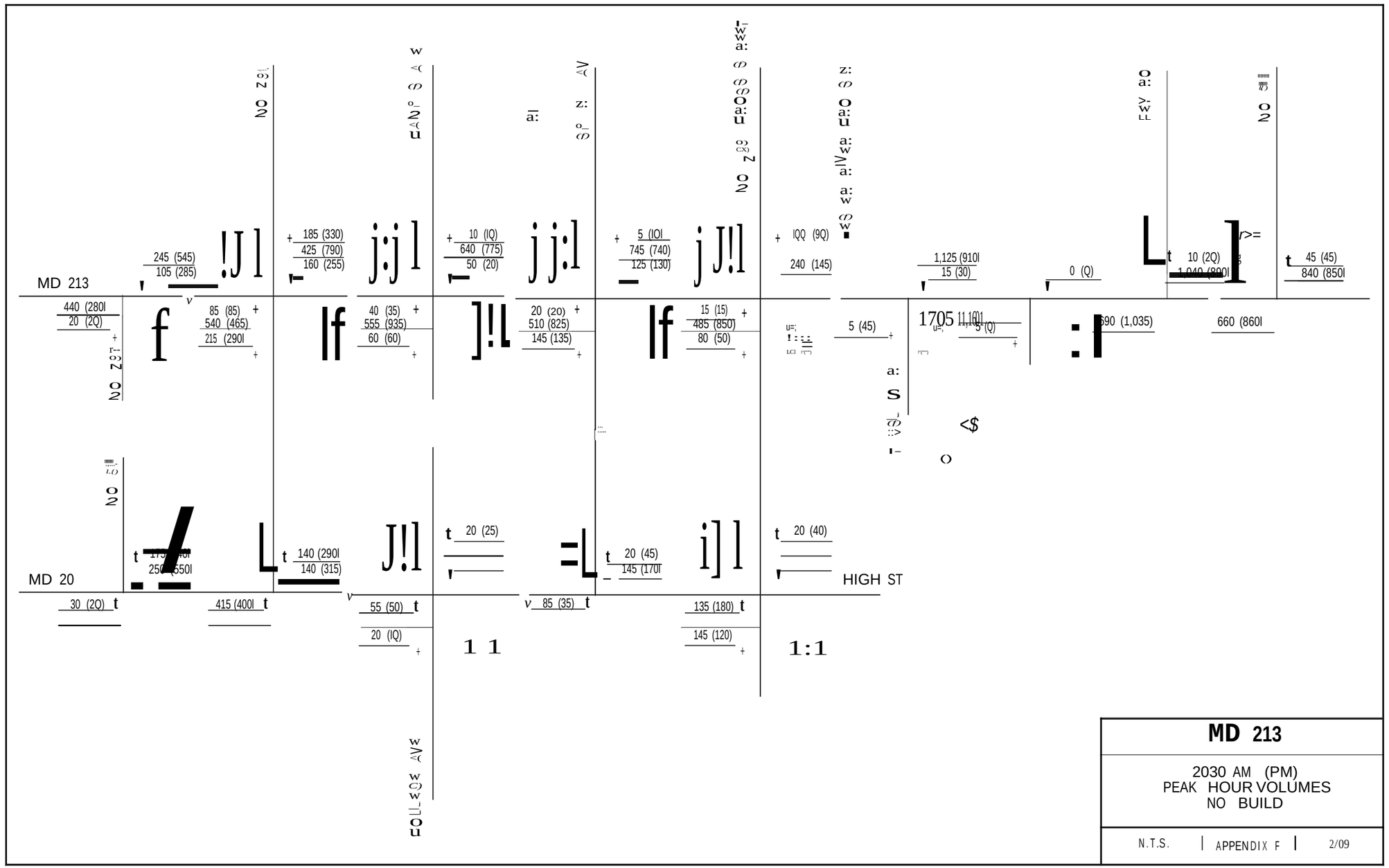

MD 213 Corridor
2030 ADT Volumes
MD 20
MD213
MD514
MD297
MD 291
College Avenue
Spring Avenue
MD 289 (Cross Street)
Chester River Crossing
Truslow Road
Old Bridge Road
Campus venue
Fey Road
MD 544
MD213
6/16/08

Appendix E: Existing Traffic Volumes (2008)



7M009
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn

Appendix F: 2030 No Build Traffic Volumes



MD 213
2030 AM (PM) PEAK HOUR VOLUMES NO BUILD
N.T.S. | APPENDIX F | 2/09

q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7M009

Appendix G: Traffic Volumes for Concepts

q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7Af2009

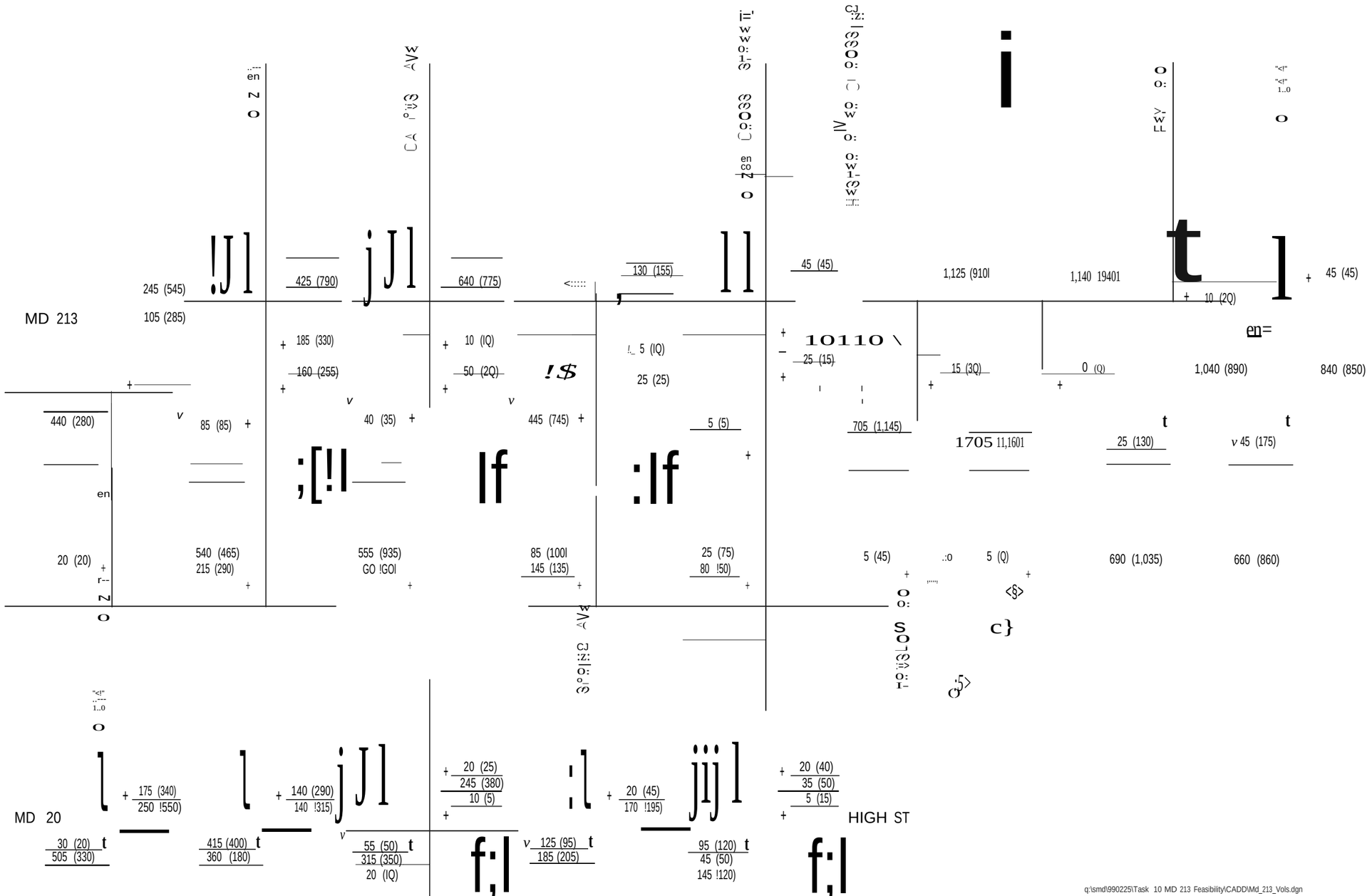
COLLEGE AVE

MD 213

2030 AM (PM)
PEAK HOUR VOLUMES
DOWNTOWN CONCEPT 5A
COMPANION BRIDGE TO HIGH STREET

N.T.S. | APPENDIX G | 2/09

q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7Af2009


MD 213
245 (545)
105 (285)
425 (790)
185 (330)
160 (255)
640 (775)
10 (IQ)
50 (2Q)
130 (155)
5 (IQ)
25 (25)
45 (45)
10110 \
25 (15)
1,125 (910l
1,140 19401
10 (2Q)
45 (45)
15 (3Q)
0 (Q)
1,040 (890)
840 (850)
705 (1,145)
1705 11,1601
25 (130)
v 45 (175)
440 (280)
85 (85)
40 (35)
445 (745)
5 (5)
20 (20)
540 (465)
215 (290)
555 (935)
GO !GOl
85 (100l
145 (135)
25 (75)
80 !50)
5 (45)
5 (Q)
690 (1,035)
660 (860)
MD 20
30 (20)
505 (330)
175 (340)
250 !550)
415 (400)
360 (180)
140 (290)
140 !315)
55 (50)
315 (350)
20 (IQ)
20 (25)
245 (380)
10 (5)
125 (95)
185 (205)
20 (45)
170 !195)
95 (120)
45 (50)
145 !120)
20 (40)
35 (50)
5 (15)
HIGH ST
q:\smd\9990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7;91,1009

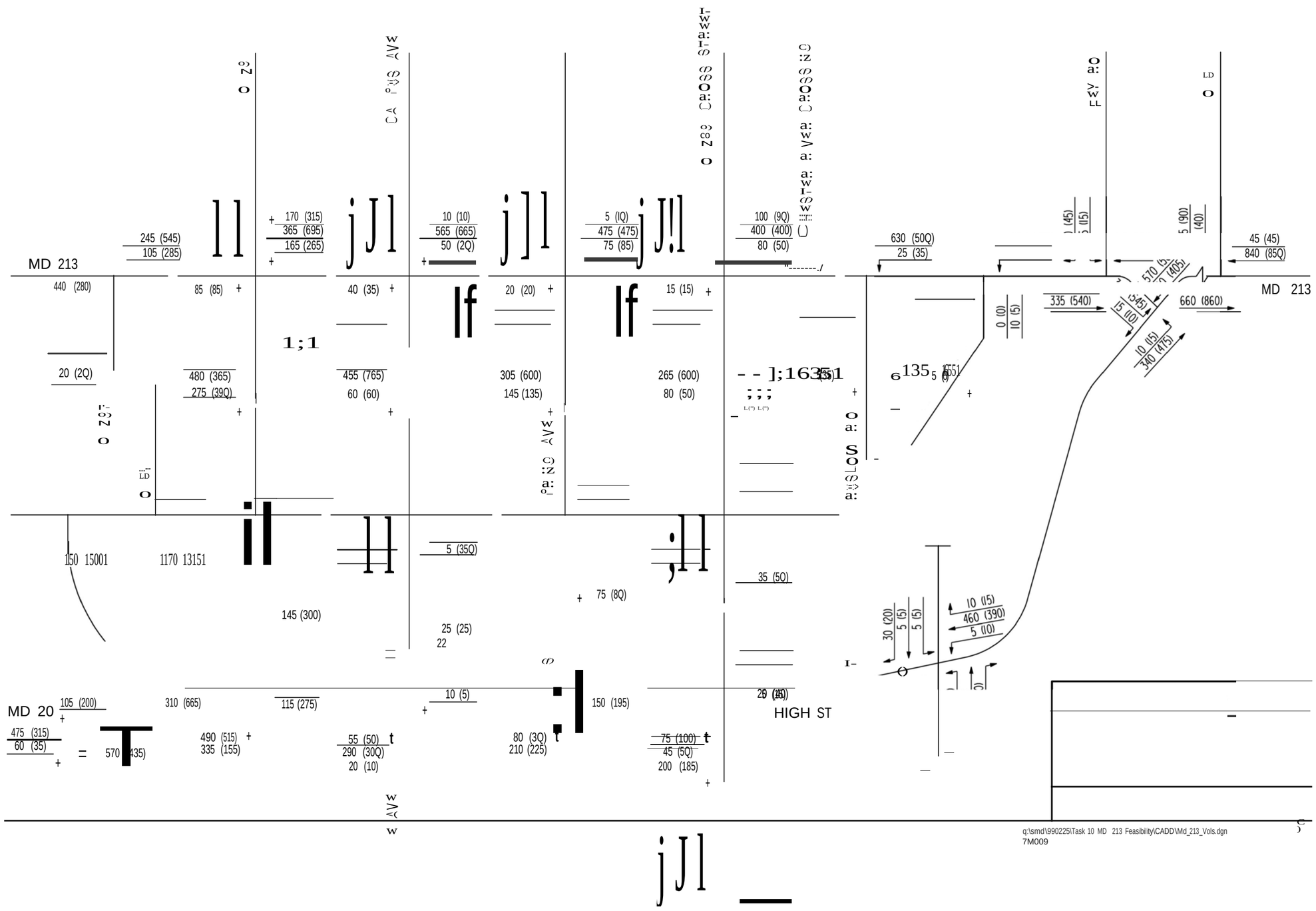
COLLEGE AVE

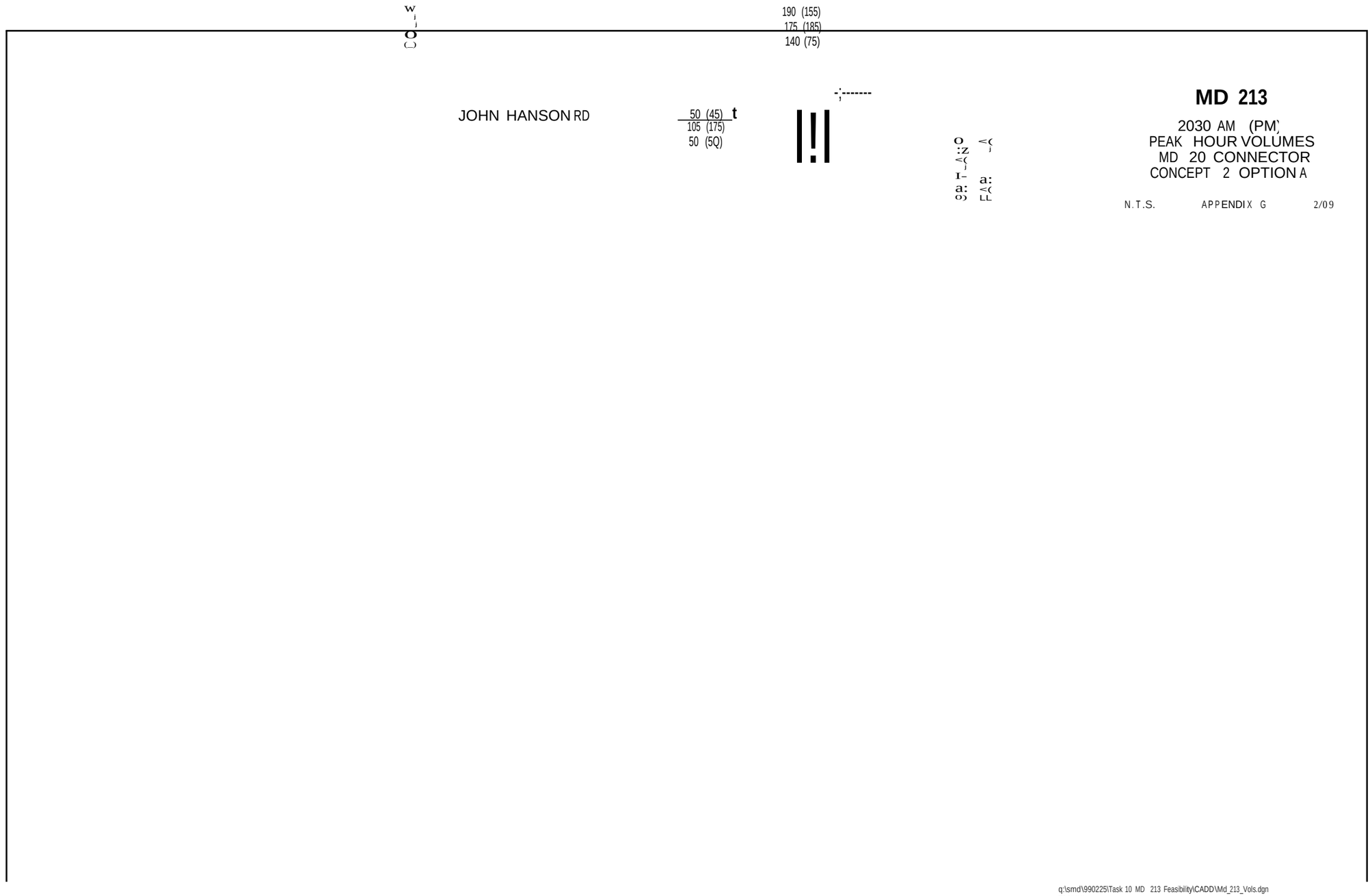
MD 213

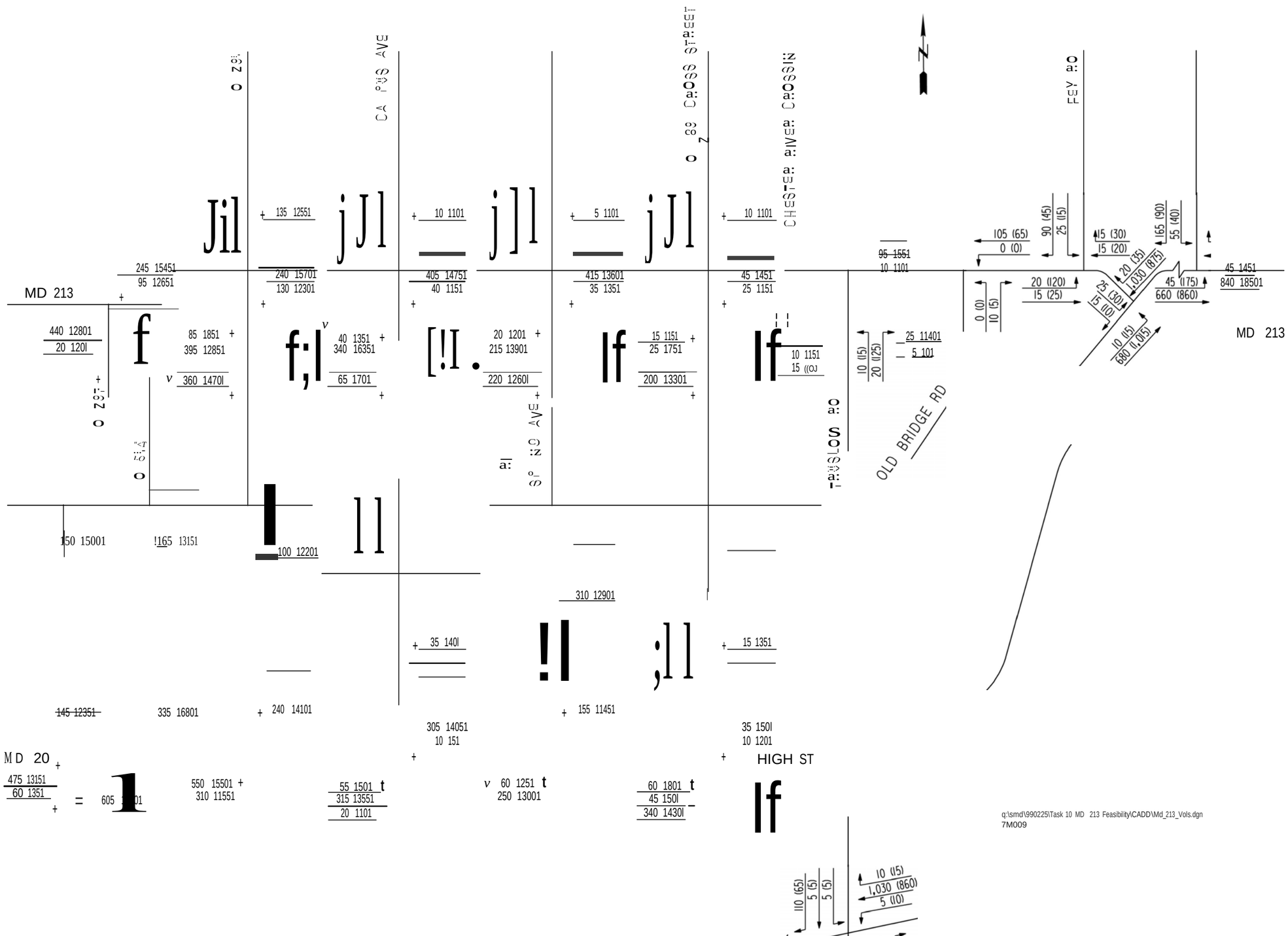
2030 AM (PM)
PEAK HOUR VOLUMES
DOWNTOWN CONCEPT 6A
NEW BRIDGE INTO TOWN

N.T.S. | APPENDIX G | 2/09

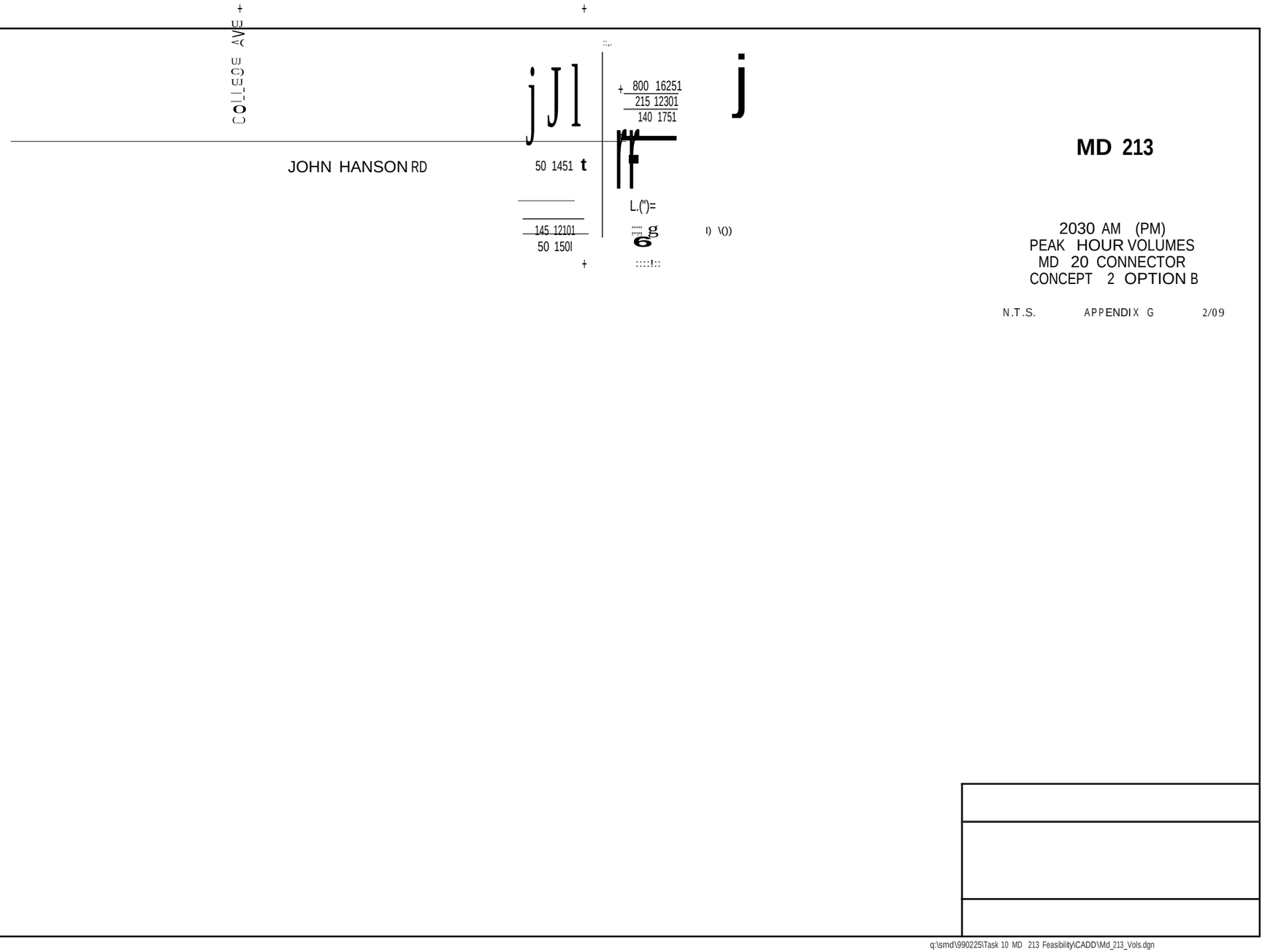
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7;91,1009


MD 213
245 (545)
105 (285)
440 (280)
20 (2Q)
85 (85)
480 (365)
275 (39Q)
170 (315)
365 (695)
165 (265)
40 (35)
455 (765)
60 (60)
10 (10)
565 (665)
50 (2Q)
20 (20)
305 (600)
145 (135)
5 (IQ)
475 (475)
75 (85)
15 (15)
265 (600)
80 (50)
100 (9Q)
400 (400)
80 (50)
630 (50Q)
25 (35)
335 (540)
660 (860)
45 (45)
840 (85Q)
MD 213
HIGH ST
MD 20
105 (200)
475 (315)
60 (35)
570 (435)
310 (665)
115 (275)
490 (515)
335 (155)
55 (50)
290 (30Q)
20 (10)
80 (3Q)
210 (225)
75 (100)
45 (5Q)
200 (185)
150 (195)
145 (300)
75 (8Q)
35 (5Q)
5 (35Q)
25 (25)
22
150 15001
1170 13151
460 (390)
10 (15)
340 (475)
30 (20)
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7M009

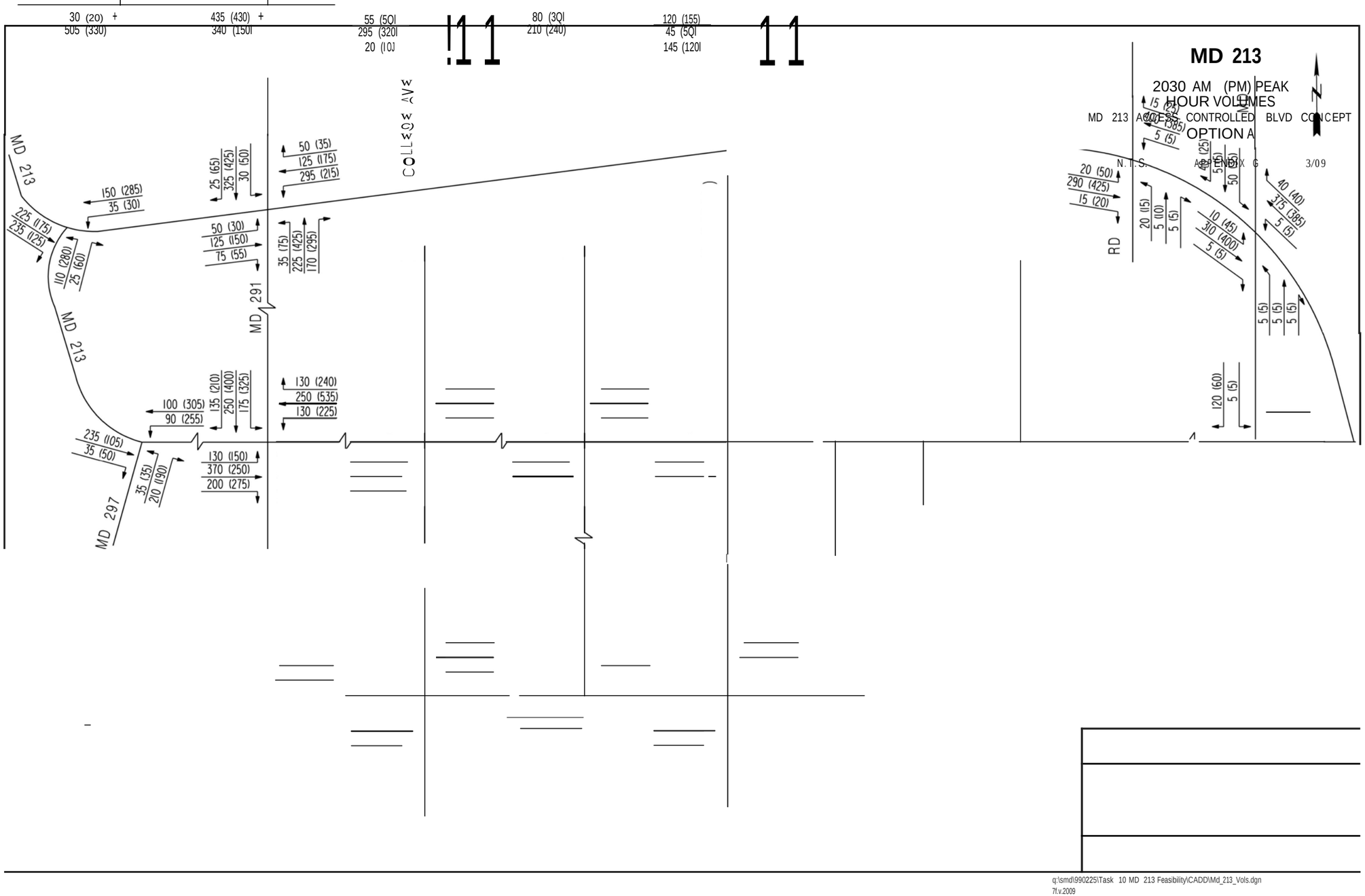

190 (155)
175 (185)
140 (75)
JOHN HANSON RD
50 (45)
105 (175)
50 (5Q)
MD 213
2030 AM (PM)
PEAK HOUR VOLUMES
MD 20 CONNECTOR
CONCEPT 2 OPTION A
N.T.S.
APPENDIX G
2/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7M009



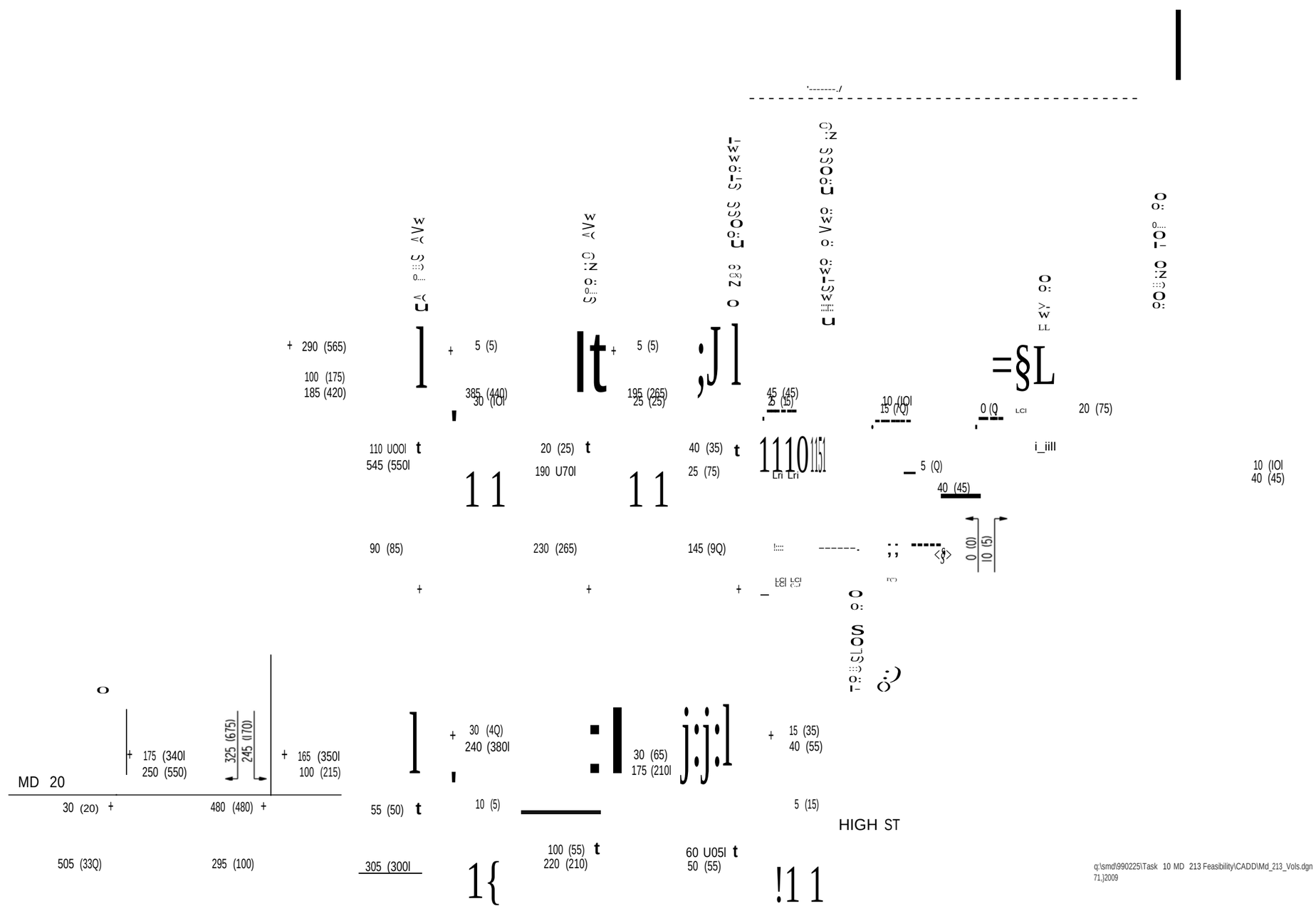
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7M009


COLLEGE AVE
JOHN HANSON RD
800 16251
215 12301
140 1751
50 1451
145 12101
50 1501
MD 213
2030 AM (PM)
PEAK HOUR VOLUMES
MD 20 CONNECTOR
CONCEPT 2 OPTION B
N.T.S.
APPENDIX G
2/09

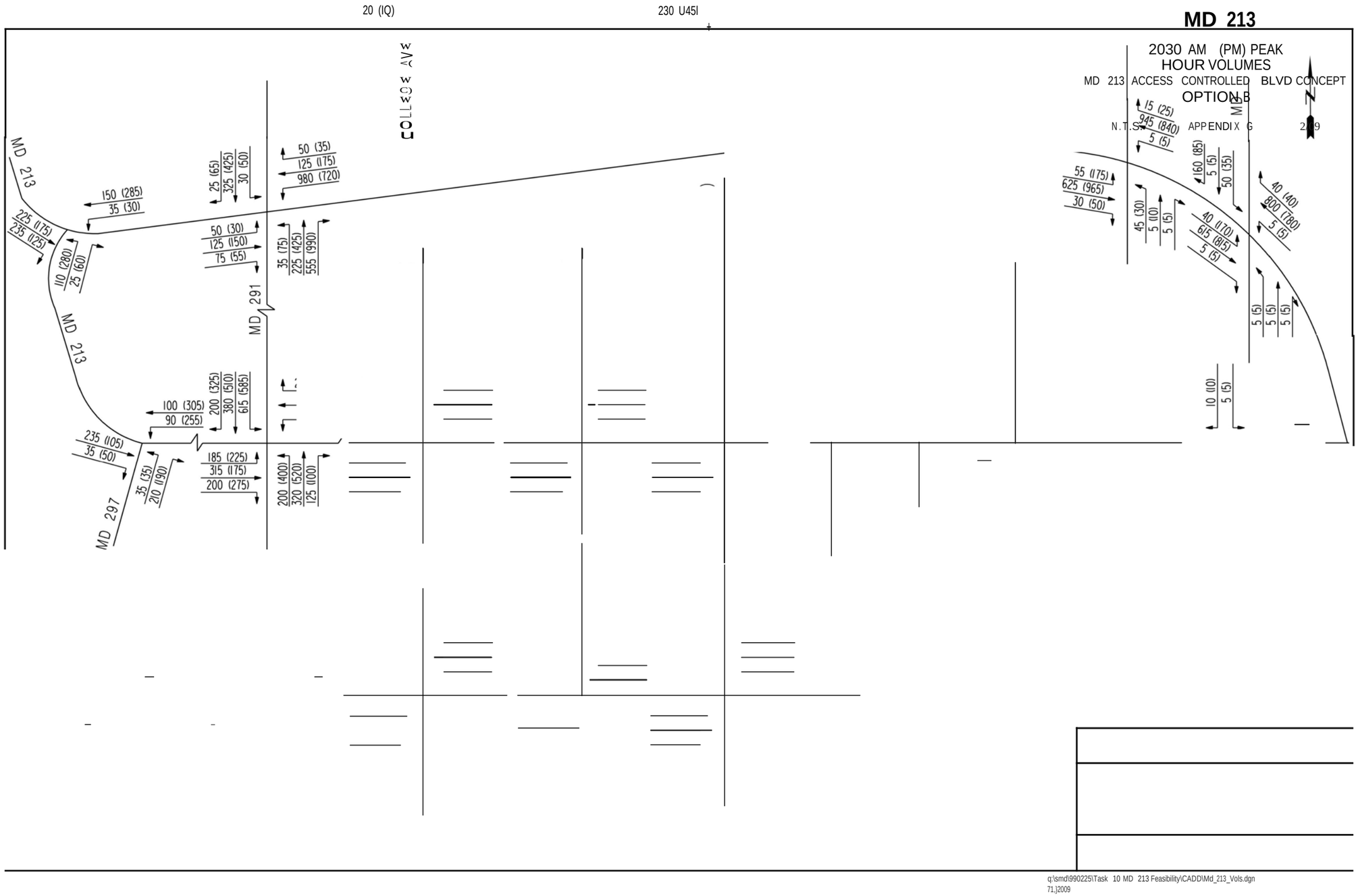
130 (240)
130 (225I
250 (535)
10 (IQ)
50 (2QI
380 (450)
5 (IOJ
120 (120I
300 (345)
220 (125I
295 (315)
15 (35)
660 (485)
5 (5)
460 (460)
600 (480I
0 (Q) :£3
15 (100)
380 (575)
0 (0)
10 (5)
60 (60)
145 (135)
5 (4QI
40 (35I
305 (520I
20 (20)
205 (360)
15 (15)
175 (380)
80 (50J
30 (125)
345 (455I
20 (25I
230 (355I
10 (5)
140 (290)
125 (290)
20 (45I
125 (155)
20 (4QI
35 (5QI
5 (15)
MD 20
HIGH ST



q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7f.v.2009



q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
7/1/2009



q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Vols.dgn
71,}2009

Appendix H: Lane Configurations for Concepts

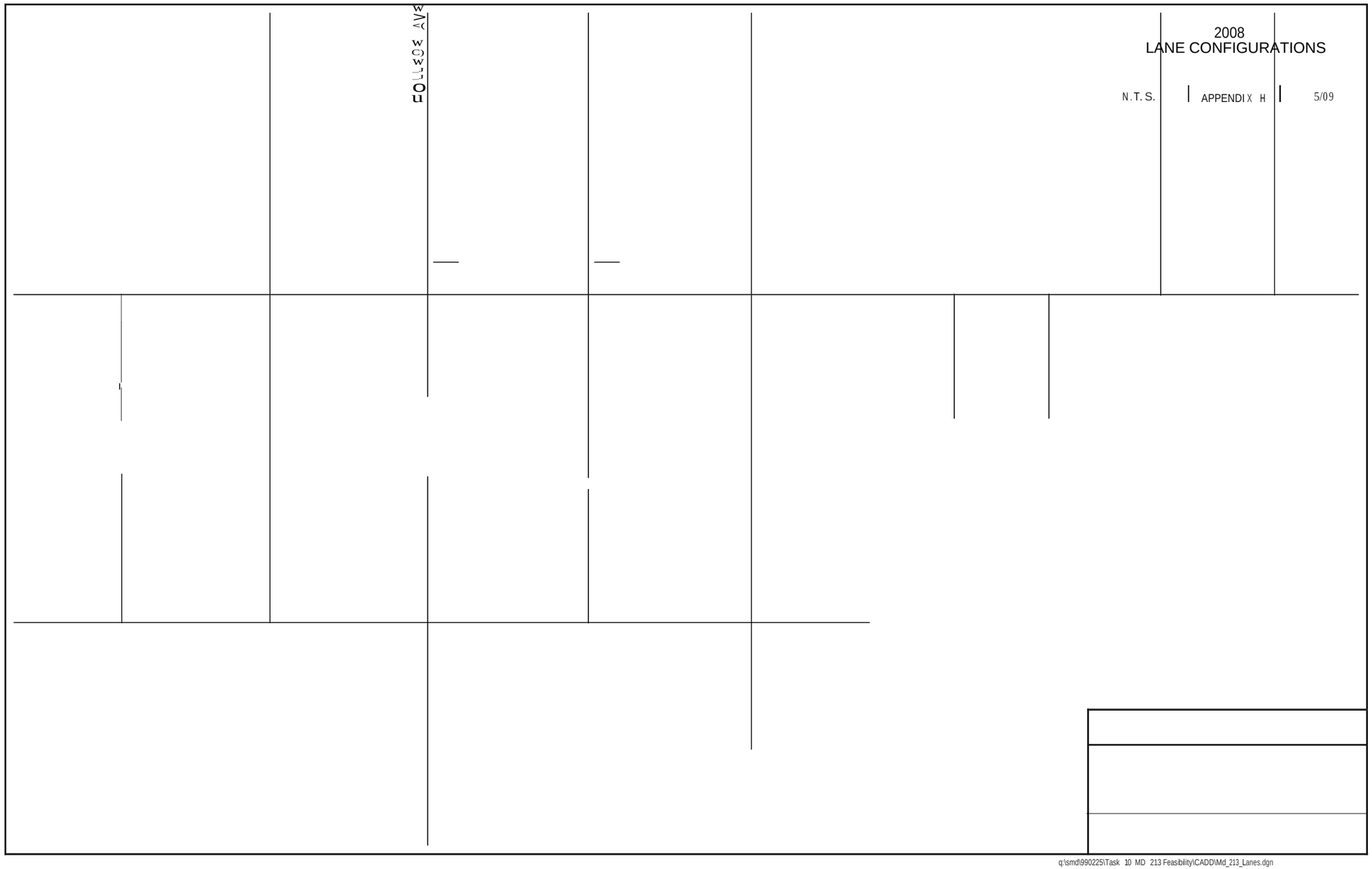
MD 213

MD 20

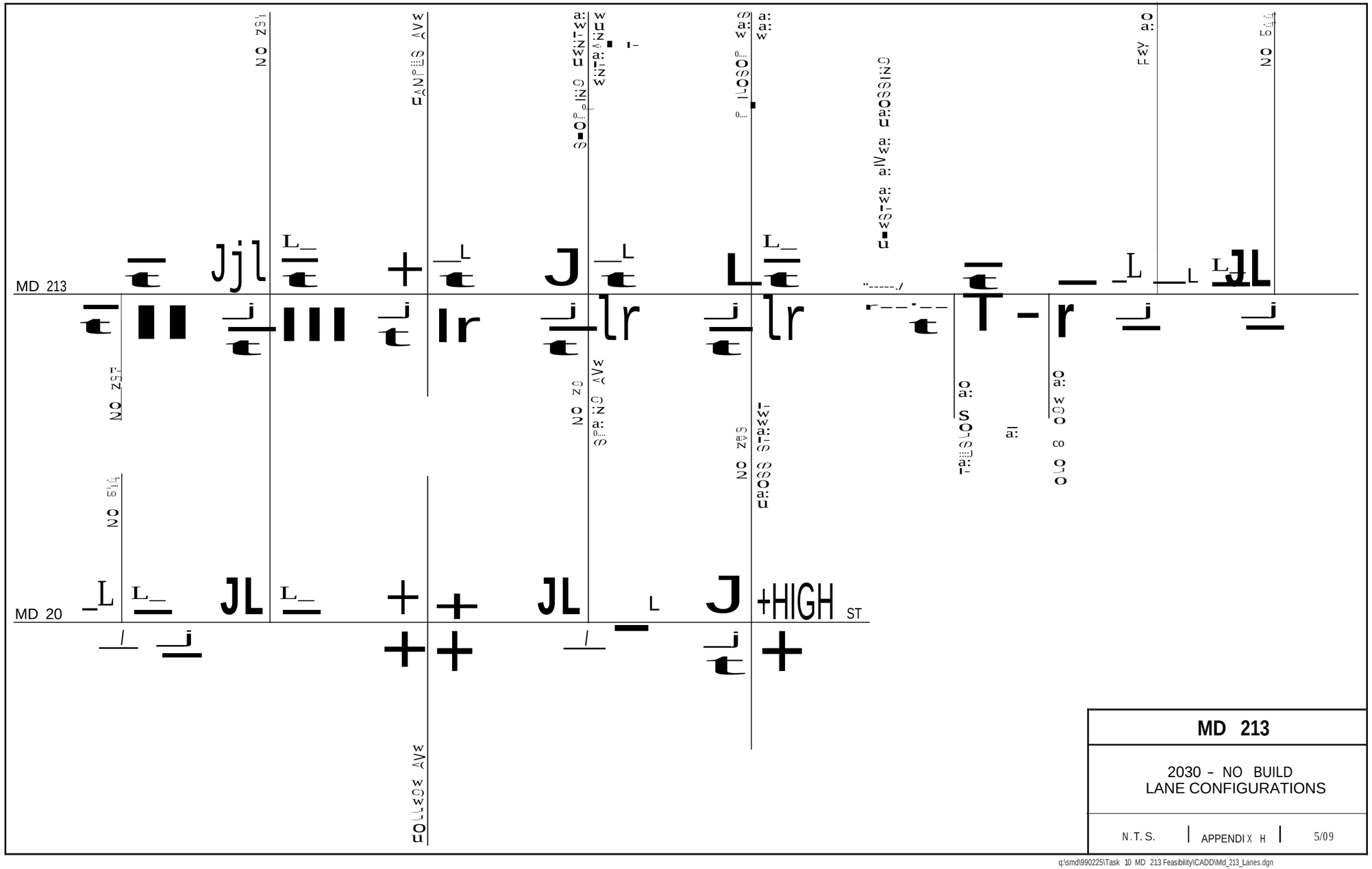
+HIGH ST

q:\smd\9990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7/S2009

MD 213



q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7/S2009

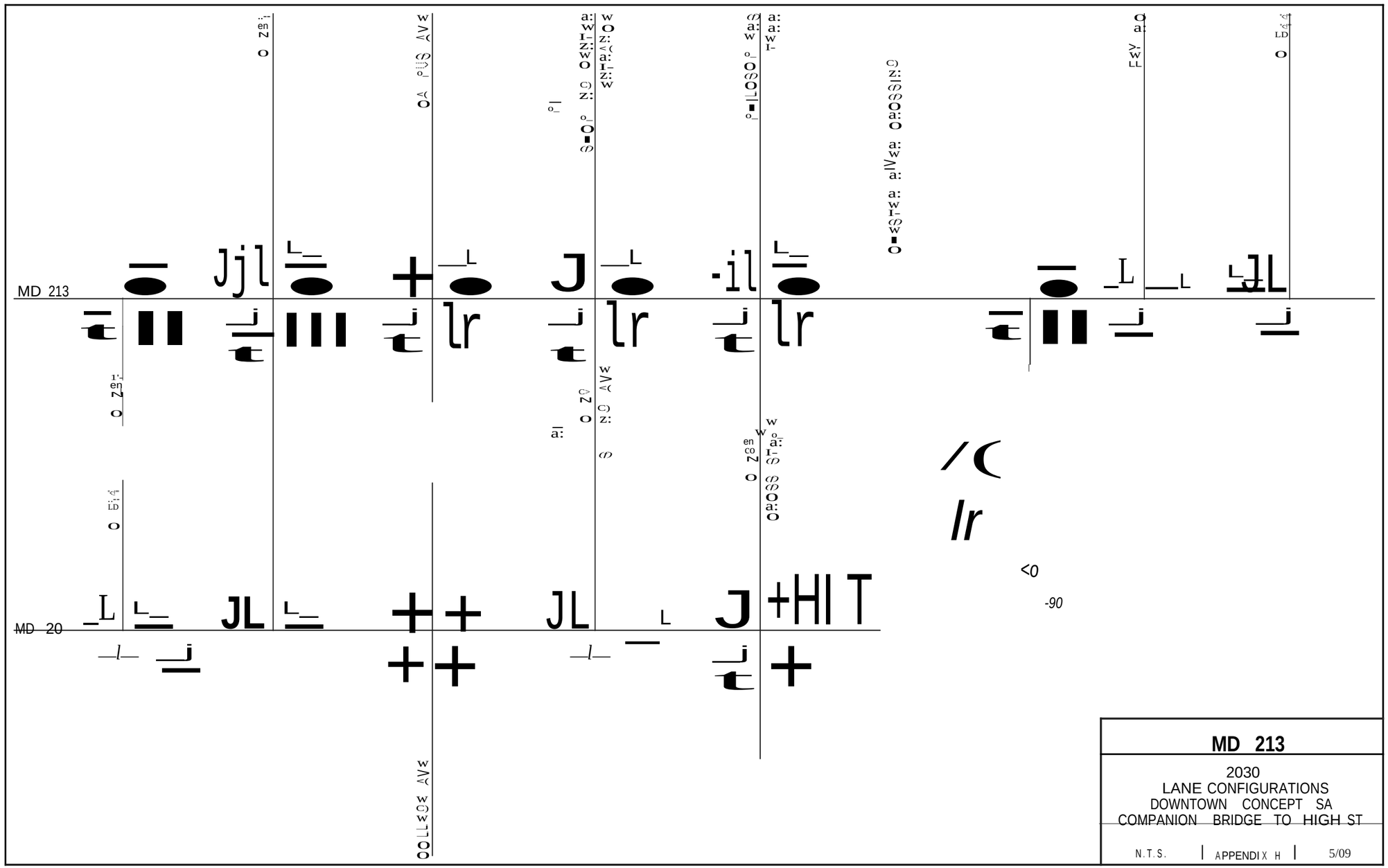


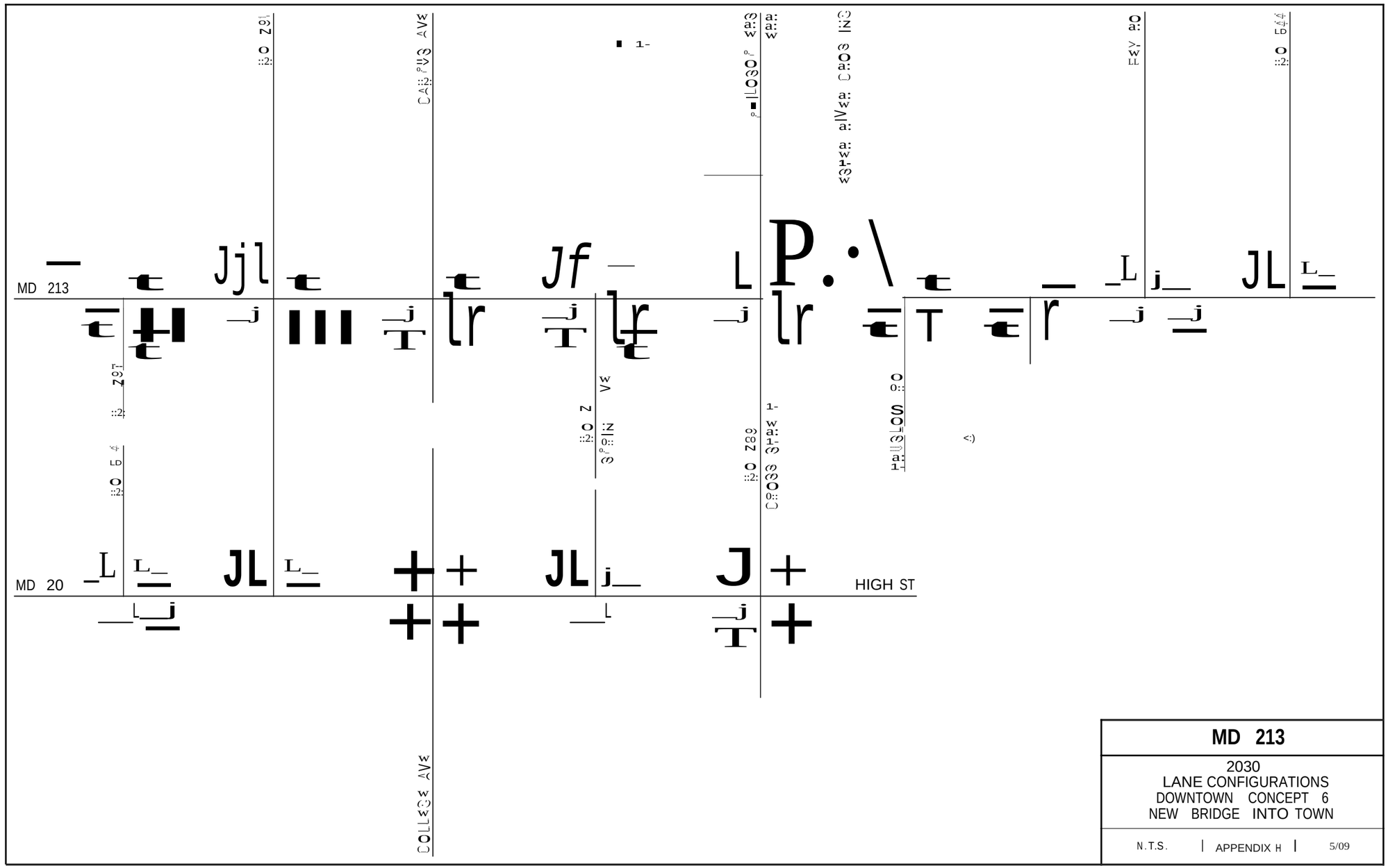
MD 213

2030 – NO BUILD
LANE CONFIGURATIONS

N.T.S. | APPENDIX H | 5/09

q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7/S2009


MD 213
MD 20
MD 213
2030
LANE CONFIGURATIONS
DOWNTOWN CONCEPT SA
COMPANION BRIDGE TO HIGH ST
N.T.S.
APPENDIX H
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7M009

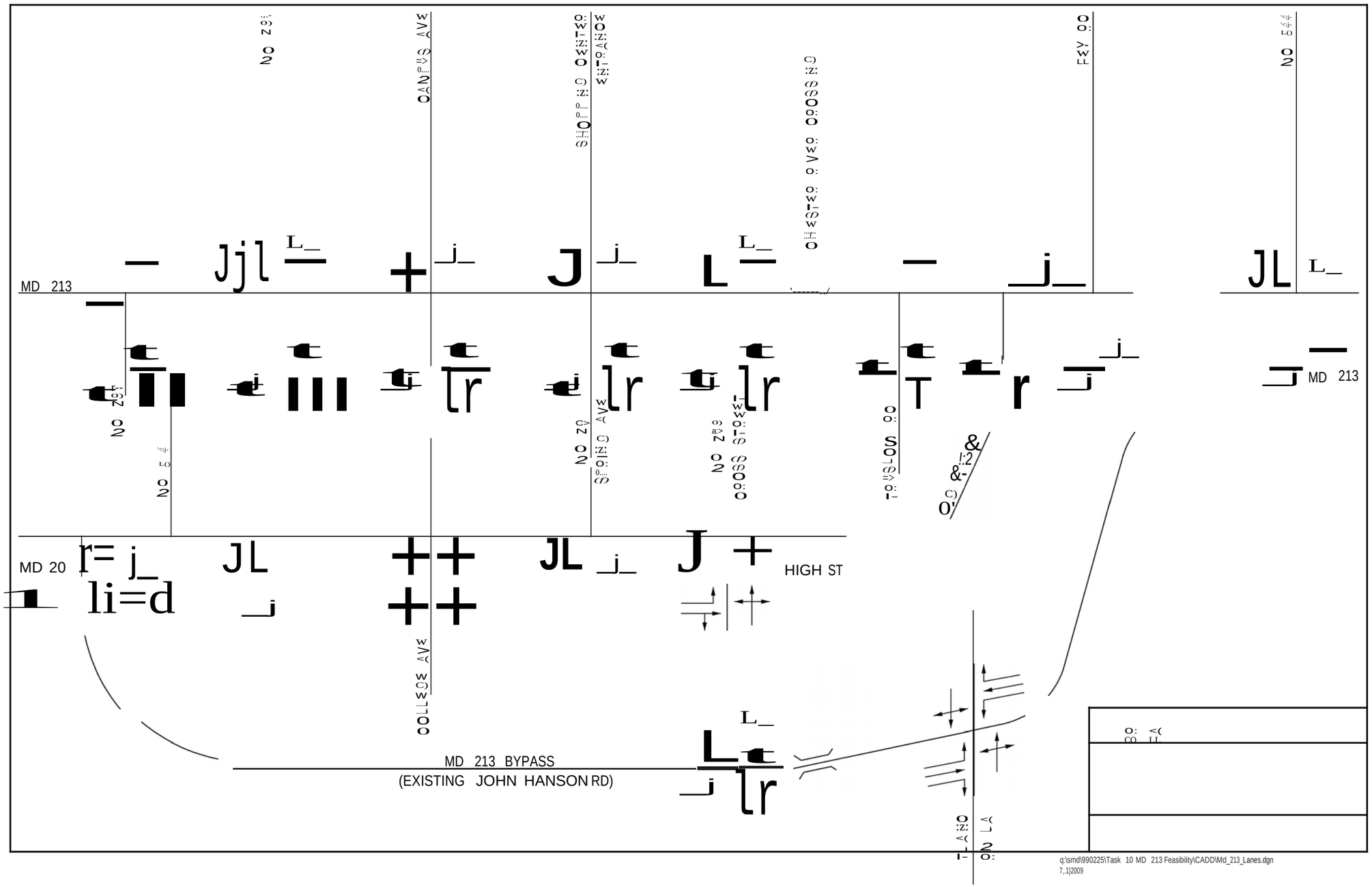


MD 213

2030
LANE CONFIGURATIONS
DOWNTOWN CONCEPT 6
NEW BRIDGE INTO TOWN

N.T.S. | APPENDIX H | 5/09

q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7h2009

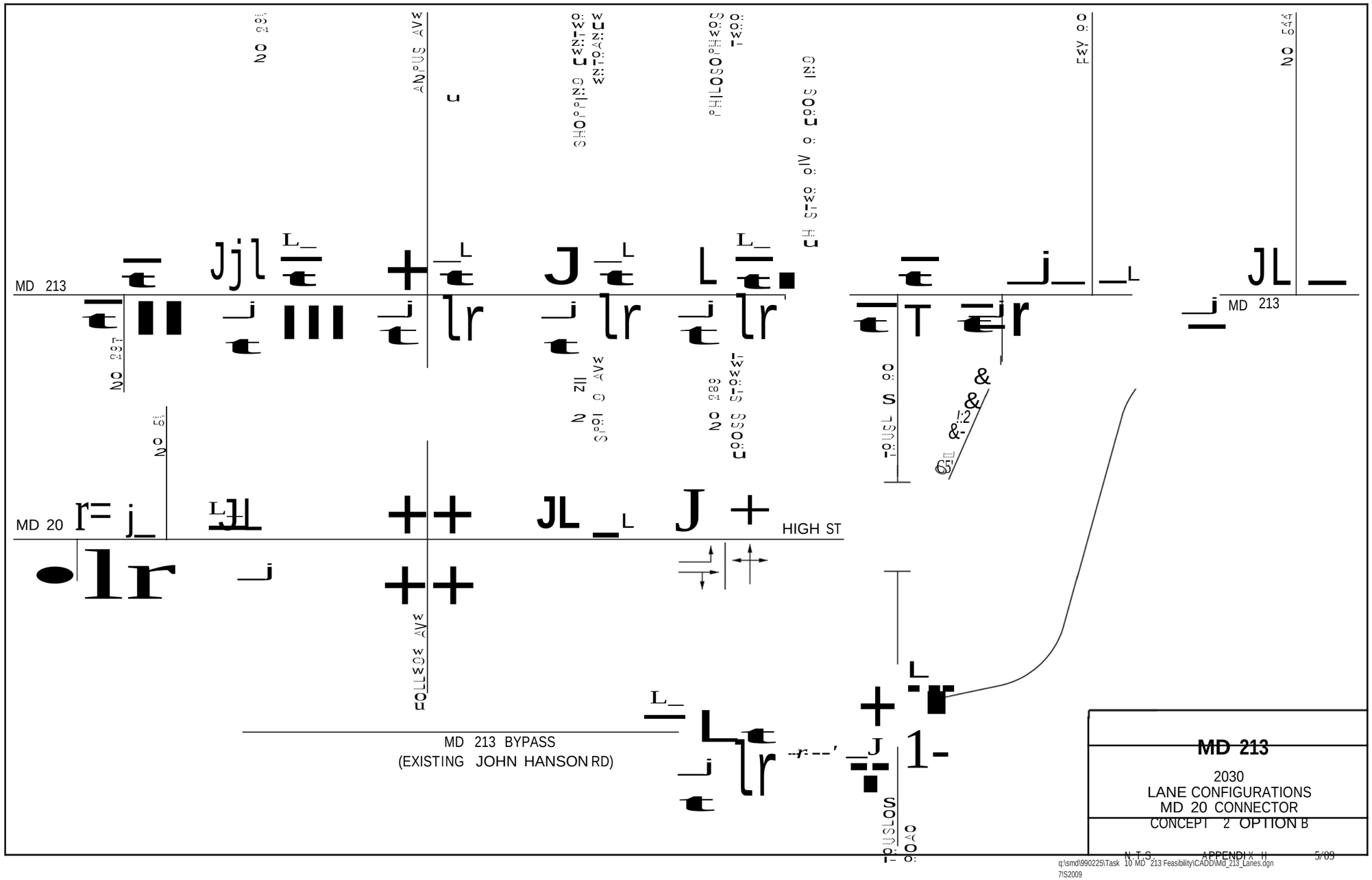

MD 213
MD 213
MD 20
HIGH ST
MD 213 BYPASS
(EXISTING JOHN HANSON RD)

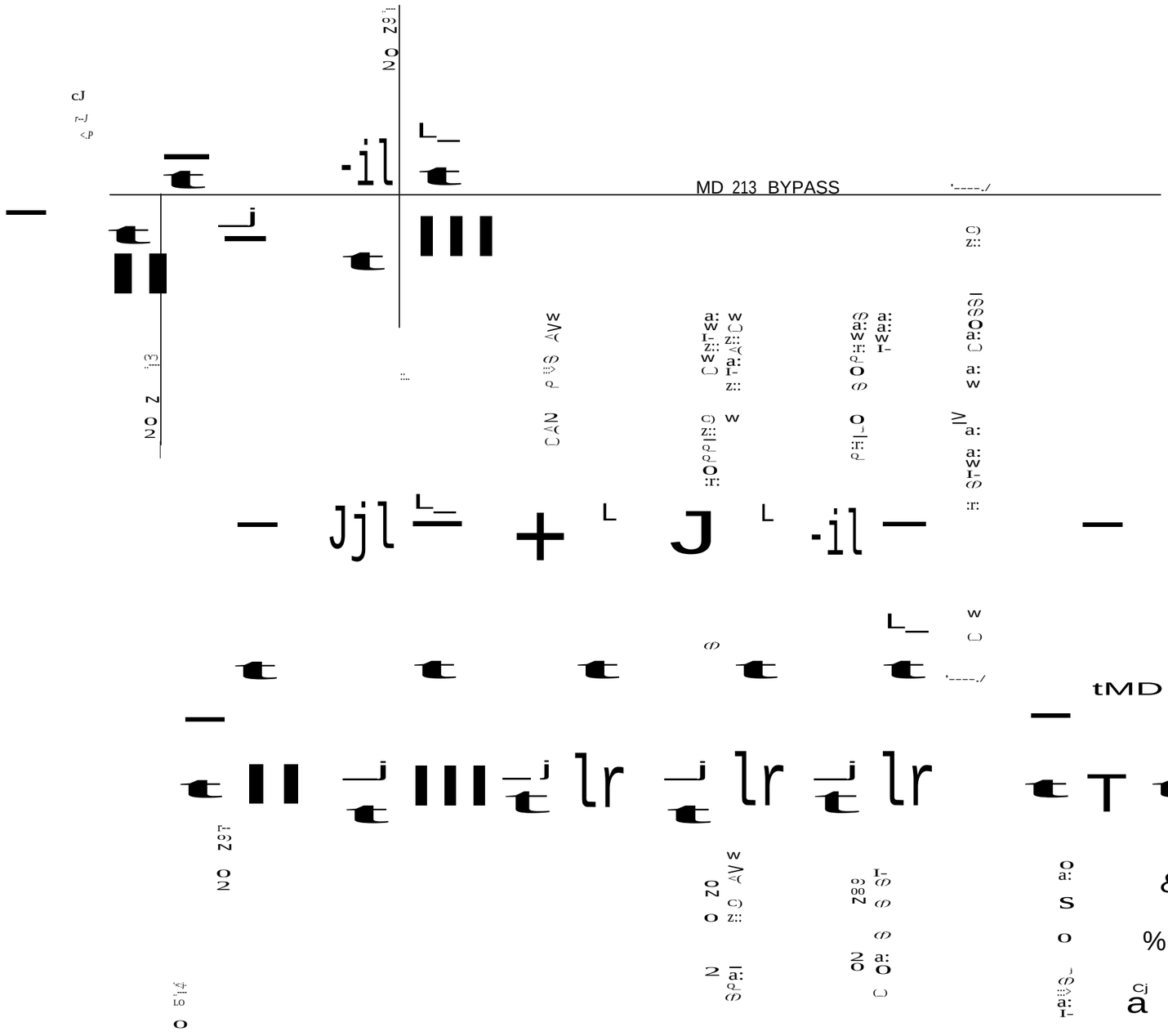
MD 213

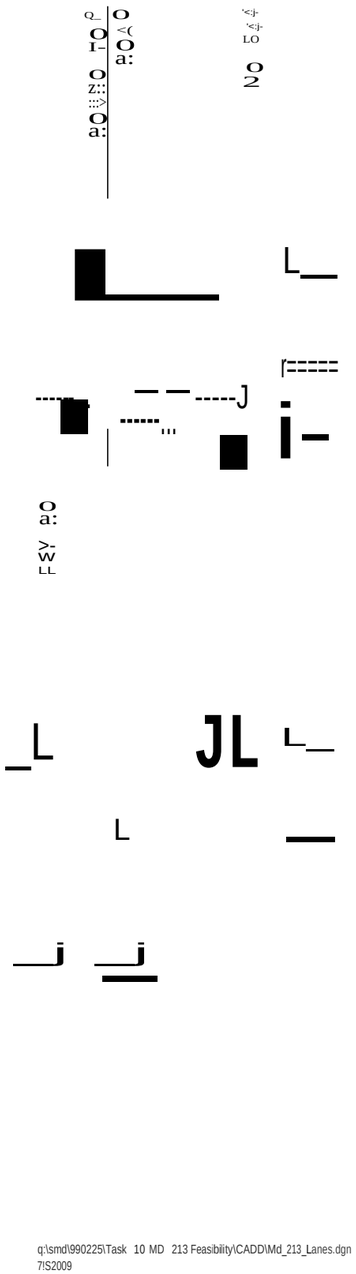
2030
LANE CONFIGURATIONS
MD 20 CONNECTOR
CONCEPT 2 OPTION A

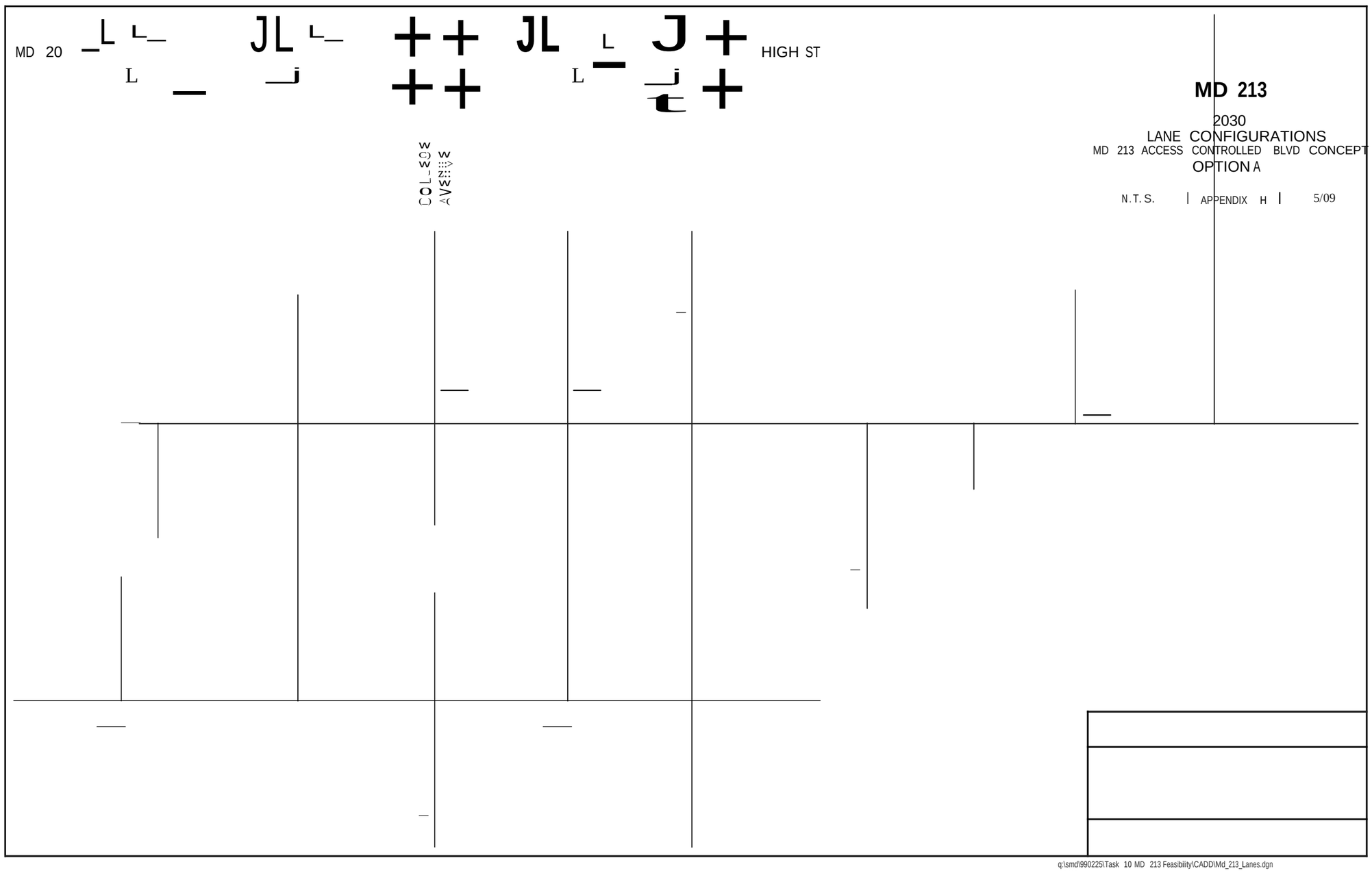
N.T.S. APPENDIX H 5/09

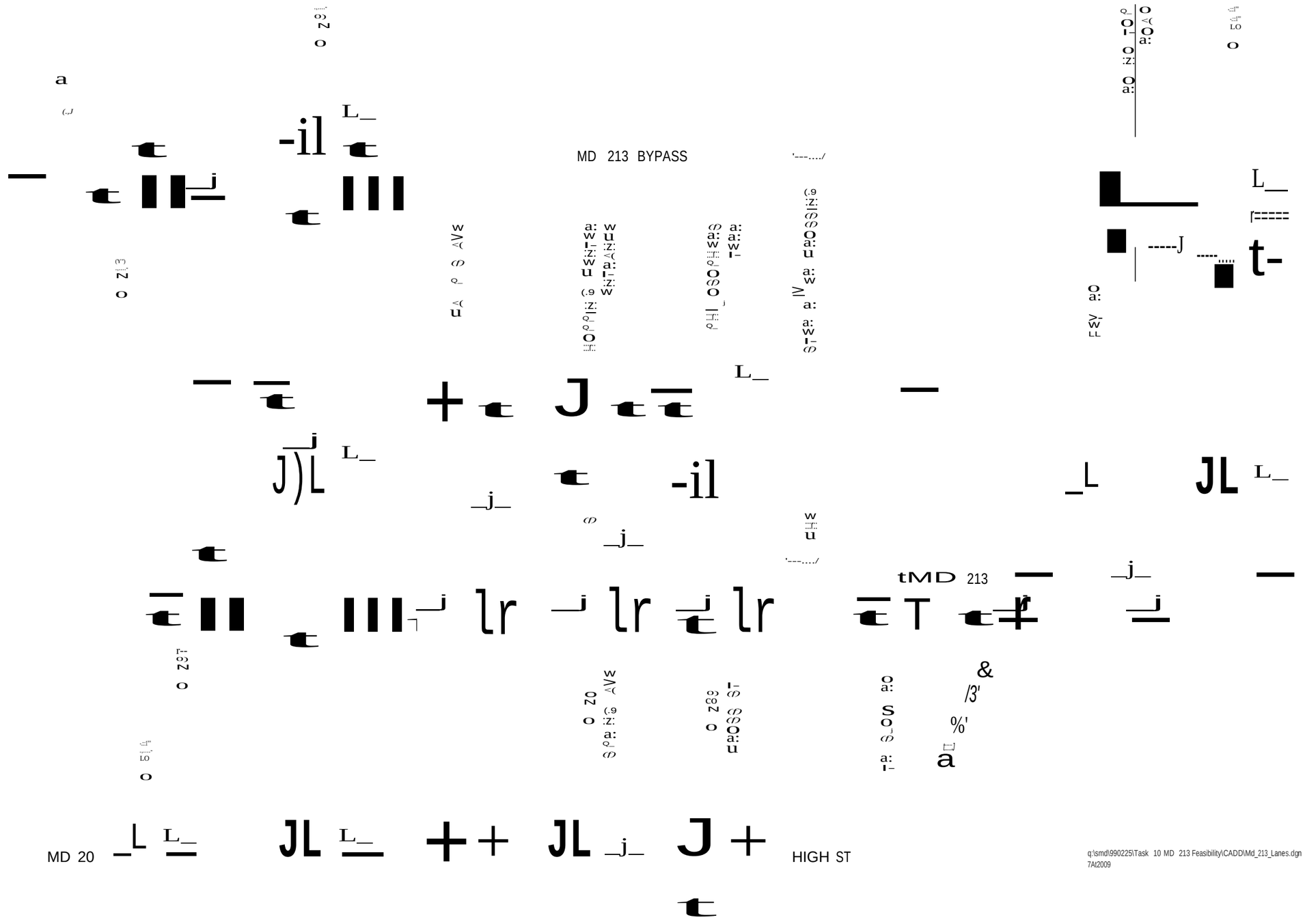
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7,.1}2009

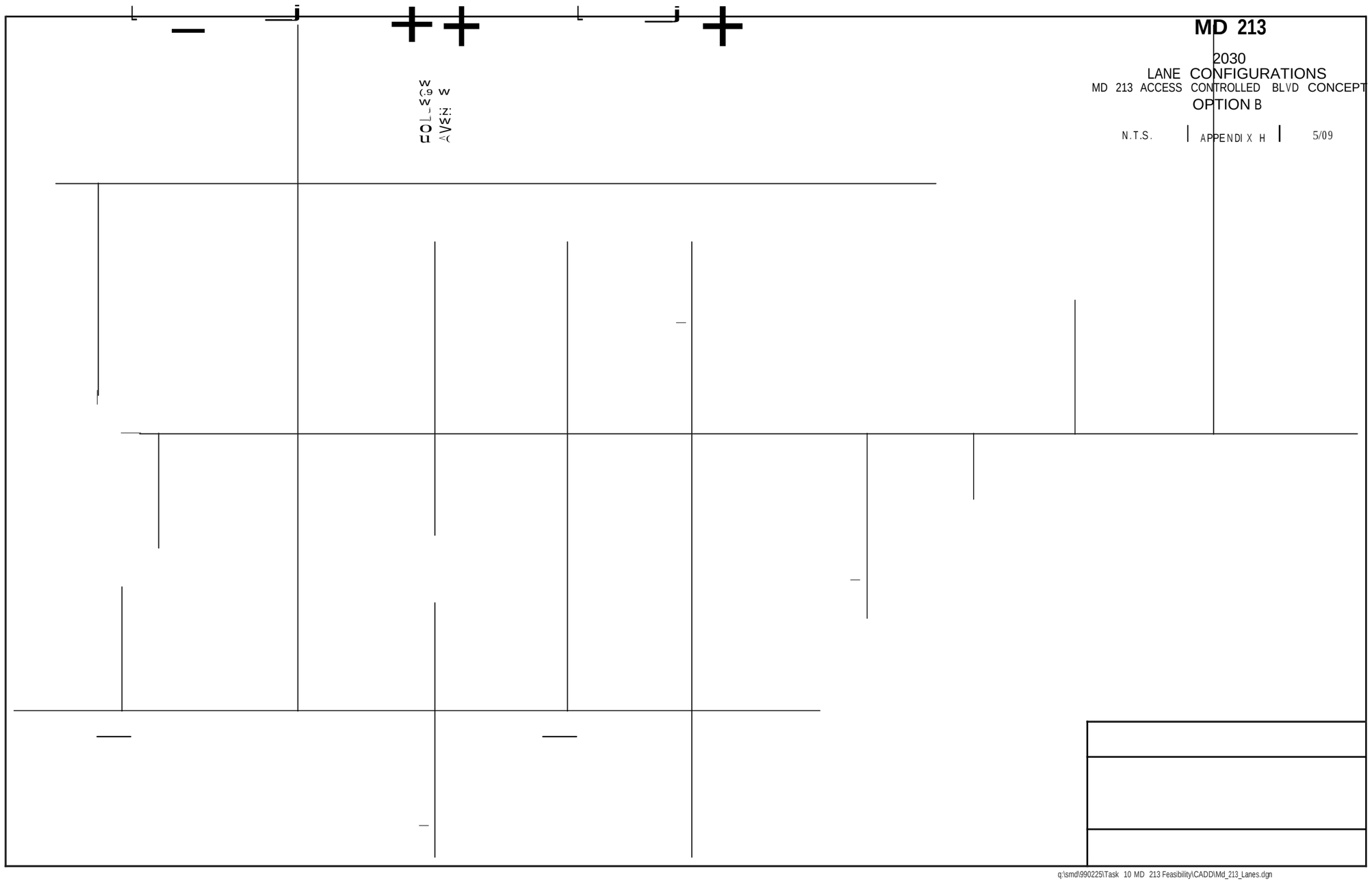

MD 213
MD 213
MD 20
HIGH ST
MD 213 BYPASS
(EXISTING JOHN HANSON RD)
MD 213
2030
LANE CONFIGURATIONS
MD 20 CONNECTOR
CONCEPT 2 OPTION B
N.T.S.
APPENDIX II
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\MD_213_Lanes.dgn
7/S2009


MD 213 BYPASS


tMD 213


MD 20
HIGH ST
COLLEGE AVE
MD 213
2030
LANE CONFIGURATIONS
MD 213 ACCESS CONTROLLED BLVD CONCEPT
OPTION A
N.T.S.
APPENDIX H
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7IS2009


MD 213 BYPASS
tMD 213
MD 20
HIGH ST
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7At2009


MD 213
2030
LANE CONFIGURATIONS
MD 213 ACCESS CONTROLLED BLVD CONCEPT
OPTION B
N.T.S.
APPENDIX H
5/09
q:\smd\990225\Task 10 MD 213 Feasibility\CADD\Md_213_Lanes.dgn
7At2009

Appendix I: MD 213 Segment Level of Service and (V/C Ratio), Class I Highway

MD 213 Bridge Segment Level of Service and (V/C Ratio), Class I Highway

Concept	Existing Bridge		New Bridge	
	AM LOS**	PM LOS**	AM LOS**	PM LOS**
Existing	E (.43)	E(.51)	------	------
2030 No Build	E (.65)	E (.73)	------	------
Downtown Concept 5A: Companion Bridge to High Street	E (.45)	E (.53)	E(.27)	E (.26)
Downtown Concept 6A: New Bridge into Town	*-*	*-*	E (.65)	E (.73)
MD 20 Connector Concept 2: Uses Existing Roadway, Option A: Companion Bridge	E (.36)	E (.44)	E (.30)	E (.32)
MD 20 Connector Concept 2: Uses Existing Roadway, Option B: Removes Existing Bridge	*-*	*-*	E (.65)	E (.73)
MD 213 Access Controlled Boulevard Concept, Option A: Companion Bridge	E (.39)	E (.44)	*D (.32)	*D (.32)
MD 213 Access Controlled Boulevard Concept, Option B: Removes Existing Bridge	*-*	*-*	*E (.65)	*E (.73)

* Based on the higher travel speed of 55 mph, versus 45 mph used for the other three alternatives, the HCS analysis produced a better level of service (LOS D). The variation in travel speeds was due to the assumed operations of the facility and the proximity of signalized intersections on either side of the bridge in the Access Controlled Boulevard Concept versus the other concepts.

- Results are not provided for the Existing Bridge under this concept because it assumes bridge removal.

** LOS for Class I Highways is based on both Percent Time-Spent-Following and Average Travel Speeds.

Appendix J: Recommended Concepts

Appendix K: Resolution 07-23, Queen Anne's County

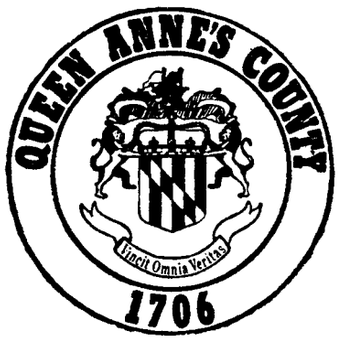
CHESTER RIVER BRIDGE CROSSING FEASIBILITY STUDY

From McGinnes Road to Worton Road
Queen Anne's County and Kent County, Maryland

PRELIMINARY COST ESTIMATES

Prepared for:
Maryland Department of Transportation
State Highway Administration

January 2010



i&t!inlutinu

A RESOLUTION REGARDING THE POSITION OF THE QUEEN ANNE'S COUNTY BOARD OF COUNTY COMMISSIONERS CONCERNING A BYPASS AND NEW CHESTER RIVER CROSSING AFFECTING NORTHERN QUEEN ANNE'S COUNTY

December 4, 2007

07-23

WHEREAS the State of Maryland has proposed a bypass around the Town of Chestertown, MD,

AND WHEREAS this proposed bypass would connect to Northern Queen Anne's County via a new bridge over the Chester River and a "Limited Access Parkway" dividing the contiguous subdivision and neighborhoods of Chester Harbor and Kingstown,

AND WHEREAS the proposed route of this bypass would close Fey Road, the major northern access route to Chester Harbor to through traffic, and the possibility that Round Top Road, the major southern access route to Chester Harbor may be closed to through traffic,

AND WHEREAS the proposed route could cause to increase to unacceptable time intervals, the response time of emergency service vehicles such as sheriff, fire, ambulance and paramedics,

AND WHEREAS the Queen Anne's County Board of County Commissioners has already committed substantial resources to improve the above levels of service based on existing road access,

AND WHEREAS the proposed route and new bridge and especially its approach from the Kent County side would disturb environmentally sensitive wetlands,

AND WHEREAS Queen Anne's County Board of County Commissioners have consistently opposed the proposed route of this bypass,

AND WHEREAS a majority of the Chester Harbor Property Owners' Association in conjunction with other residents in the vicinity have consistently opposed the proposed route of this bypass,

THEREFORE BE IT RESOLVED That the Queen Anne's County Board of County Commissioners restates its continued opposition to the proposed route of the Chestertown Bypass,

AND BE IT FURTHER RESOLVED that the Chester Harbor Property Owners' Association through its board of Directors representing its members has again called upon the Queen Anne's County Board of County Commissioners to continue their opposition to the proposed route of the bypass,

AND BE IT FURTHER RESOLVED that the Chester Harbor Property Owners' Association and other residents living in the potentially affected areas, are not fundamentally opposed to the prospect of an additional Chester River Crossing and/or a bypass but object to the existing proposed route,

AND BE IT FURTHER RESOLVED any new Chester River Crossing should not lead the State to demolish or otherwise render useless for automobile or other vehicular use, the existing bridge and that such bridge will continue to be supported and maintained by the State,

AND BE IT FURTHER RESOLVED that the Queen Anne's County Board of County Commissioners will continue discussions with the Town of Chestertown, The County of Kent and the State of Maryland to find an alternative route for the Bypass.

ATTEST:

Margie Houck

Margie Houck
Executive Assistant

THE COUNTY COMMISSIONERS OF
QUEEN ANNE'S COUNTY

Commission President

Gene M. Ransom III

Courtney M. Billups

Paul L. Gunther

Carol R. Fordonski