



Appendix J

Options Dropped

Managed Lanes

(w/o C-D lanes)

APPENDIX J

DESCRIPTION OF OPTIONS DROPPED MANAGED LANES WITHOUT C-D LANES

I-95 / I-895 Interchange - Managed Lanes Alternate / Option 3A (See Appendix I, Sheet 1A) - This option adjusts the configuration of the existing interchange by relocating the southbound roadway of I-95 and the northbound roadway of I-895 to make I-95 the through movement in the interchange. Southbound I-95 will be relocated adjacent to the existing northbound roadway of I-95, whereas the northbound general purpose lanes of I-895 will be relocated to a grade-separated crossing over the proposed northbound and southbound roadways of I-95. The inside managed lane from southbound I-95 connects to the outside of southbound I-895 and the outside managed lane continues alongside the northbound I-95 general-purpose roadways.

Approaching from the south, I-95 northbound will be widened approximately ¼ mile south of the interchange to form a new managed lane in addition to the existing three general purpose lanes. The three general purpose northbound lanes of I-95 will merge with the two general purpose lanes of northbound I-895 that transitions from a five-lane to a four-lane general purpose roadway approximately ¼ mile north of the merge point.

Approaching from the south, the two northbound lanes of I-895 will be relocated to a grade-separated crossing over both the proposed northbound and southbound roadways of I-95. North of the proposed grade crossing, a one-lane ramp will diverge from the left of northbound I-895 to become the second northbound managed lane and the two relocated northbound lanes of I-895 will merge from the right with the three northbound lanes of I-95.

Approaching from the north, the general-purpose lanes of I-95 split into the two-lane southbound general purpose roadway for I-895 and the three-lane general-purpose roadway for I-95. The two managed lanes will split to the single-lane off-ramp to southbound I-895 and the single managed lane within the median of I-95. The fourth lane of southbound I-95 (most likely the outside general purpose lane) will be carried through the interchange and dropped at a point approximately ¼ mile south of the interchange. The third lane of I-895 is carried through the interchange and becomes an auxiliary lane that ends with the off-ramp to Moravia Road. The inside managed lane from southbound I-95 connects to the outside of southbound I-895 and the outside managed lane continues in the median alongside of the southbound I-95 general-purpose lanes.

Option 3A is more difficult to construct than Option 3B. It requires more extensive retaining walls and more right-of-way acquisition than Option 3B.

Option 3A has been dropped from further consideration.

I-95 / I-695 Interchange - Managed Lanes Alternate / Option 3A (See Appendix I, Sheet 3B)

- This option improves the geometry and driver expectancy on I-95 by untwisting the braided mainline of I-95 and replacing all left-hand entrances and exits with more conventional right-hand entrances and exits. However, the braided alignment is retained on I-695 to make efficient connections between the I-95 and I-695 roadways, but all general-purpose ramps are reconfigured to make right-hand, single-point connections. The exit ramps typically split to separate ramps with opposing directions of travel for the destination route. Left-hand merge and diverge ramps are retained for the managed lane ramps on I-695. Most of the merges and diverges occur off of the mainline roadways for I-695 and I-95 (on the ramps themselves), limiting the number of lane drops that must occur on the mainline. This option requires a four-level interchange and is compatible with planned high occupancy vehicle (HOV) lanes on I-695, west of I-95.

Through the interchange, I-95 consists of four general-purpose lanes in each direction. Three-lanes are generally provided on the mainline of I-695, with additional lanes added or dropped at interchange ramps.

Approaching from the south on northbound I-95, the four-lane general-purpose roadway of northbound I-95 splits into a four-lane northbound general purpose roadway for I-95 and a two-lane, right-hand exit that ultimately splits to eastbound and westbound I-695. North of the I-695 interchange, the ramps from eastbound and westbound I-695 merge together to form a two-lane ramp onto northbound I-95.

Approaching from the south on northbound I-95, the two-lane managed roadway runs parallel and adjacent to the median edge of the northbound general-purpose roadway of I-95. South of the interchange, traffic in the northbound managed roadway would have the option of continuing through the interchange on the two-lane managed roadway or exiting to either direction of I-695 through a common right-hand, single-lane exit. North of the interchange, traffic will enter the managed roadway through a common right-hand, two-lane entrance that merges back into a two-lane managed roadway via a series of lane drops.

Approaching from the north on the southbound general-purpose roadway of I-95, traffic would exit onto a two-lane ramp, which then splits, into separate ramps for entry onto the eastbound and westbound roadways of I-695. South of the interchange, traffic from both directions of I-695 would enter on the right at a single-point with a two-lane entrance ramp and merge via a series of lane drops into the four-lane general-purpose roadway.

Approaching from the north, the two-lane managed roadway runs adjacent to the median edge of the southbound general-purpose roadway of I-95. North of the interchange, traffic would have the option of remaining on the two-lane managed roadway through the interchange or exiting to either direction of I-695 through a common right-hand, single-lane exit. South of the interchange, traffic will enter the managed roadway through a common right-hand, two-lane entrance that merges back into the two-lane managed roadway via a series of acceleration lanes and lane drops.

Approaching the interchange from the west, traffic on eastbound I-695 would have the option of continuing through the interchange on the three-lane eastbound general purpose roadway, entering either the northbound or southbound managed lane of I-95 from a common left-hand, single-lane exit in the median or entering the northbound or southbound general purpose lanes through a common right-hand, two-lane exit on the outside of the eastbound roadway. East of the interchange, traffic from both the general purpose and managed ramps would enter via a common, right-hand entrance.

Approaching the interchange from the east, traffic on westbound I-695 would have the option of remaining on the three-lane westbound general-purpose roadway or entering the managed or general-purpose lanes of I-95 from a common right-hand, two-lane ramp. Traffic on this common ramp would ultimately split between a two-lane ramp to the northbound managed / general-purpose roadways of I-95 and a single-lane southbound ramp to the southbound managed/general purpose roadways of I-95. West of the interchange, traffic from both the northbound and southbound directions of the I-95 managed roadway would merge from the median of I-695 into westbound I-695 through a series of acceleration lanes and lane drops. Similarly, traffic from both the northbound and southbound directions of the I-95 general-purpose roadway would merge with the three-lane westbound I-695 general-purpose roadway through a series of acceleration lanes and lane drops.

Option 3A retains the braided alignment on I-695 and several left-hand entries and exits on I-695. It has greater impacts on development in the southeast quadrant of the interchange than Option 3A Modified. It also has a complicated maintenance of traffic plan as well as a longer construction period than Option 3A Modified.

Option 3A has been dropped from further consideration.

I-95 / I-695 Interchange - Managed Lanes Alternate / Option Concept 3B (See Appendix I, Sheet 3H) - This option adds lanes movements to General Purpose Lanes Option 2B via additional directional ramp connections with left-hand exits and entrances from the medians of I-95 and I-695. This option would be compatible with future High Occupancy Vehicle (HOV) lanes along I-695, west of I-95.

I-95 through the interchange consists of four general-purpose lanes in each direction. A minimum of two-lanes are generally provided on the mainline of I-695, with additional lanes added or dropped at interchange ramps. The general-purpose roadway, moving from the portion of I-695 west of the interchange to the portion of I-95 south of the interchange, would be two-lane. All other general purpose and managed ramps would consist of one lane.

Approaching from the south, I-95 traffic would have the option of continuing on the four-lane general-purpose roadway or exiting onto the common three-lane, exit to both eastbound and westbound I-695. The northbound general purpose and managed roadways would then cross over southbound I-95, eastbound I-695, westbound I-695, on existing alignment and then go under southbound I-95 a second time before merging with ramps from eastbound and westbound I-695.

Approaching from the south, the two-lane managed roadway runs in the median immediately adjacent to the northbound I-95 general-purpose lanes. South of the interchange, traffic in the northbound managed roadway would have the option of continuing through the interchange on the two-lane managed roadway, exiting to eastbound I-695 with a right-hand exit, or exiting to westbound I-695 with a left-hand exit. Just north of I-695, a single-lane ramp from eastbound I-695 would merge from the left before the general-purpose roadway crosses under southbound I-95. After this crossing, the acceleration lane drops and the on-ramp from westbound I-95 merges from the left. The acceleration lane for this ramp drops about ¼ mile north of the interchange to tie back into a two-lane managed roadway.

Approaching from the north, traffic on the southbound general purpose roadway of I-95 would have the option of remaining on the four-lane general purpose roadway through the interchange or slipping off to the right onto separate ramps for entry onto the eastbound and westbound roadways of I-695. The southbound general-purpose roadway continues on existing alignment across northbound I-95, eastbound I-695 and westbound I-695. Between the bridges over westbound I-695 and eastbound I-695, the loop ramp from westbound I-695 merges with the four-lane general-purpose roadway with an acceleration lane that drops south of the northbound I-95 overpass bridge. Beyond this lane drop, traffic from eastbound I-695 would enter the southbound roadway on the right with a two-lane entrance ramp and merge via a series of lane drops into the four-lane general-purpose roadway.

Approaching from the north, the southbound managed roadway of I-95 runs in the median adjacent to the southbound general-purpose roadway. North of the interchange, traffic would have the option of remaining on the two-lane managed roadway through the interchange or exiting to either direction of I-695 through left-hand exits at two separate locations north of both I-695 roadways. South of the interchange, traffic would enter the managed roadway from I-695 through two left-hand entrances / acceleration lanes at separate locations south of both I-695 roadways.

Approaching from the west, traffic on eastbound I-695 would have the option of continuing through the interchange on the eastbound two-lane general purpose roadway, entering either the northbound or southbound managed lane of I-95 from two separate left-hand exits, or entering the northbound or southbound general purpose lanes of I-95 through a common right-hand exit. East of the interchange, traffic from both directions of the I-95 general-purpose lanes would merge into eastbound I-695 via a common, right-hand entrance ramp through a series of acceleration lanes and lane drops. Traffic would also merge from both directions of the I-95 managed roadway through two separate left-hand entrances.

Approaching from the east, traffic on westbound I-695 would have the option of remaining on the two-lane, westbound general purpose roadway, entering the southbound managed lane of I-95 from a left-hand exit, entering southbound general-purpose lanes of I-95 from a right-hand exit (loop ramp), or entering the northbound general purpose and northbound managed lanes of I-95 through a common right-hand exit. West of the

interchange, traffic from both directions of the I-95 general-purpose lanes would merge into westbound I-695 via a common, right-hand entrance ramp through a series of acceleration lanes and lane drops. Traffic would also merge from both directions of the I-95 managed roadway through two separate left-hand entrances.

A short weaving distance may be created between the entrance from southbound I-95 onto eastbound I-695 and the exit to MD 7. This weaving distance would be examined. Weaving distances between the managed lane median ramps and the US 1 interchange (0.8 miles) would be also be evaluated.

Option 3B retains braided alignments on I-95 and I-695 as well as several left-hand entries and exits. Option 3B requires a low speed 30 mph loop ramp to accommodate the movement from northbound I-95 to westbound I-695. It also has a complicated maintenance of traffic plan as well as a longer construction period than Option 3A Modified.

Option 3B has been dropped from further consideration.

I-95 / MD 43 Interchange - Managed Lanes Alternate / Option 3B (See Appendix I, Sheet 5B) – This concept proposes to split the MD 43 through lanes to provide a managed-lane-only interchange. Single-lane ramps provide for all movements to and from the managed lanes.

I-95 through the interchange consists of two managed lanes and four general-purpose lanes in each direction. Two through lanes and two managed lanes are provided in each direction on MD 43, with additional lanes added or dropped at interchange ramps.

Approaching the interchange from the south, the two-lane exit ramp would divide into one lane to eastbound MD 43 and one lane to westbound MD 43. The southbound approach to the interchange is a similar configuration, with the two-lane ramp dividing into one lane to westbound MD 43 and one lane to eastbound MD 43.

A single exit point is provided from eastbound and westbound MD 43, with each ramp further dividing to provide access to either northbound or southbound I-95 via direct ramp connections.

The MD 43 managed lanes will bridge over I-95, generally following the location of existing MD 43. Managed lane connections between I-95 and MD 43 will be via ramps in the median of I-95 to the signalized intersection on the MD 43 Bridge over I-95.

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Option 3B presents a weaving problem on eastbound MD 43. Option 3B also has a higher construction cost than Option 3A.

Option 3B has been dropped from further consideration.