

# White Papers

## White Paper No. 1 - Travel Time Changes

One effect of the proposed construction of Route 92, and the increase in highway capacity, would be a change in travel times for trips made within the study area (see accompanying map). This discussion summarizes travel time changes related to project implementation.

The year 2028 forecast of regional trips between origins and destinations (provided by the transportation model prepared for the EIS) assigned those trips using two separate networks; one containing proposed Route 92, and another without proposed Route 92. The model recorded a travel time for each trip for each network (with and without proposed Rt 92). Any difference in trip time results solely from the construction of proposed Route 92.

The travel time for a particular trip may change for several reasons:

- The trip may use the new highway, and therefore benefit from the availability of a higher quality roadway than was previously used for the same trip.
- The trip may use the same roads as would be used without Route 92 being available, but other trips would be diverted to Route 92, and the trip now offers an improved Level of Service.
- Certain intersection movements may increase or decrease along a particular path due to shifting traffic flow patterns, causing a relatively small change in travel time for Route 92 users and also for those not using Route 92.

Since travel time changes are indicators of congestion changes, it is important to review in some detail the travel time effects of constructing the proposed roadway. The model travel time results can be organized so as to provide a clearer understanding of the results.

The following information, derived from the transportation modeling work, summarizes the estimated travel time changes effected by proposed Route 92 for all peak hour trips within the study area, and for three subgroups of these trips. Summaries are provided for the following categories of travelers:

- Users of proposed Route 92.
- Users of the parallel road network in the immediate vicinity of proposed Route 92. This includes CR 522, CR 571, Ridge Road, Dey Road, Plainsboro Road, and Cranbury Neck Road.
- Users of Route 1 and Route 27.
- All trips on the study area road network.

### ***Users of Route 92***

In the AM peak hour, it is estimated that a total of 3,905 drivers (and their passengers) will use proposed Route 92. Overall AM peak hour travel time savings for these users are estimated to average about 15.2 minutes, totaling 988 hours per day in this time period.

In the PM peak hour, 2,659 drivers (and their passengers) will save an average of about 11 minutes each, totaling 488 hours per day in this time period.

### ***Users of the Parallel Road Network in the Immediate Vicinity of Route 92***

In the AM peak hour, it is estimated that a total of 7,175 drivers (and their passengers) will use the parallel roads in the immediate vicinity of the proposed Route 92 roadway. Overall AM peak hour travel time savings for these users are estimated to average about 5.5 minutes, totaling 652 hours per day in this time period. Users of the parallel roads make shorter trips, not involving proposed Rt. 92.

In the PM peak hour, 4,539 drivers (and their passengers) will save an average of about 1.9 minutes each, totaling 147 hours per day in this time period.

### ***Users of US Route 1 and Users of NJ Route 27***

In the AM peak hour, it is estimated that a total of 6,260 drivers (and their passengers) will use either US Route 1 or NJ Route 27 within the study area. Overall AM peak hour travel time savings for these users are estimated to average about 5.3 minutes, totaling 550 hours per day in this time period.

In the PM peak hour, 5,260 drivers (and their passengers) will save an average of about 4 minutes each, totaling 353 hours per day in this time period.

### ***The Total Study Area Network***

In the AM peak hour, it is estimated that a total of 154,426 drivers (and their passengers) will use at least one of the many roadways within the study area network. Of these total drivers using the roadways in the study area, some drivers would not, in the course of their ordinary routes of travel, use the capacity provided by proposed Route 92, and other drivers would benefit, directly or indirectly, by the new capacity. It is important to recognize that the average travel time improvement statistic is calculated by dividing the improved travel times for drivers who do benefit among all drivers, and thus the average trip travel time improvement statistic loses meaning. That is because no driver actually experiences the *average* system trip time improvement -- some drivers will experience travel time benefits from the new capacity (either by using proposed Route 92, or parallel roads along proposed Route 92), and other drivers will use routes for which no travel time benefit accrues.

The combined AM peak hour travel time savings for all drivers within the study area network is estimated to total 5,679 hours per day in this time period. In the PM peak

hour, 157,044 drivers (and their passengers) will save a combined total of 2,593 hours per day in this time period.

For each of the user groups discussed above, additional data for the peak travel hours, as listed below, is provided in following sections.

- Summaries of peak hour trips by ranges of estimated travel time change.
- A pie chart displaying the number and percentage of trips in each of the travel time change ranges.

### *Conclusion*

The road system modeling results indicate that proposed Route 92 would provide travel time savings and congestion relief to travelers within the region. Users of proposed Route 92, users of parallel local roadways, and users of Route 1 and Route 27 all will be among those provided some degree of congestion relief. It is estimated that more than 2,000 drivers (and their passengers) will each save more than 20 minutes during the morning peak hour each day; an additional 7,700 peak-hour drivers (and their passengers) will each save more than 10 minutes each morning.

During the afternoon peak hour, about 2,400 drivers (and their passengers) are projected to each save more than 10 minutes each day.

In all, projected peak hour travel time savings are more than 8,000 vehicle-hours per day.

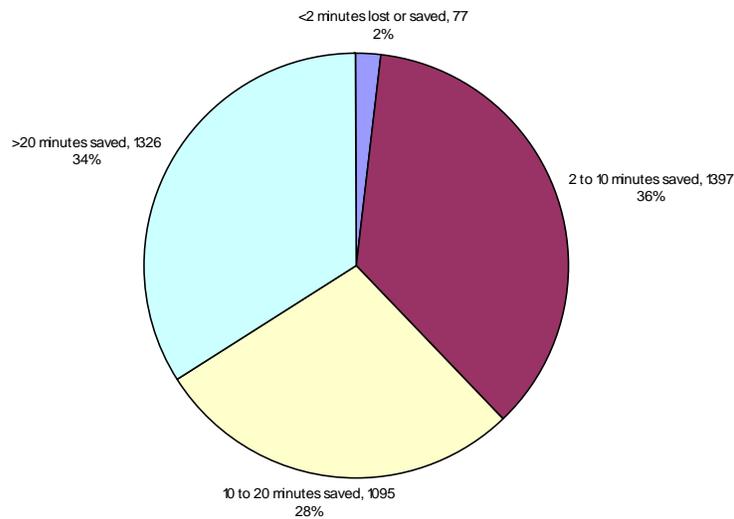
It is important to note that travel time improvements, and attendant improvement in local air quality should be considered together with other project benefits (such as removal of regional traffic from local roads) and impacts (such as wetland impacts), as discussed in detail in the FEIS.

## Travel Time Changes for Users of Route 92

### AM Peak Hour

In the AM peak hour, it is estimated that a total of 3,905 drivers (and their passengers) will use the proposed Route 92 roadway. (The results do not include travelers who will use only the portion of Route 92 between New Jersey Turnpike Interchange 8A and US Route 130.) Overall AM peak hour travel time savings for these users are estimated to be about 15.2 minutes on average, totaling 988 hours per day in this time period.

Of the trips that use proposed Route 92, 34% will save more than twenty minutes each, with an average savings in this group of 24.7 minutes.



### PM Peak Hour

In the PM peak hour, it is estimated that a total of 2,659 drivers (and their passengers) will use the proposed Route 92 roadway\*. Overall PM peak hour travel time savings for these users are estimated to be about 11 minutes on average, totaling 488 hours per day in this time period.

Of the trips that use proposed Route 92, 36% will save between two and ten minutes each, with an average savings in this group of 7.1 minutes, and 61% will save between ten and twenty minutes each, with an average savings in this group of 13.8 minutes.

## Travel Time Changes for Users of the Parallel Road Network In the Immediate Vicinity of Route 92

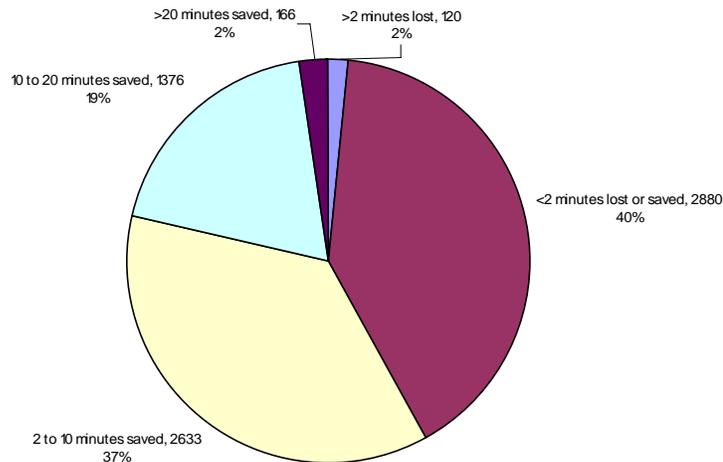
### AM Peak Hour

In the AM peak hour, it is estimated that a total of 7,175 drivers (and their passengers) will use the parallel roads in the immediate vicinity of the proposed Route 92 roadway.

These results represent trips passing a particular point 1 to 2 miles west of US Route 130 on each of 6 roads: CR-522, Ridge Road, Dey Road, Plainsboro Road, Cranbury Neck Road, and CR-571. It is anticipated that there will be other users of these roads, many of whom would also experience travel time savings as a result of diversion of traffic from these roads to Route 92.

The diversion of traffic to Route 92 will reduce the traffic volumes on these roads, and the remaining (undiverted) users will benefit as a result. Overall AM peak hour travel time savings for these users are estimated to be about 5.5 minutes on average, totaling 652 hours per day in this time period.

Of the trips that use the parallel roads, 37% will save between two and ten minutes each, with an average savings in this group of 5.3 minutes, and 19% will save between ten and twenty minutes each, with an average savings in this group of 15.1 minutes.



### PM Peak Hour

In the PM peak hour, it is estimated that a total of 4,539 drivers (and their passengers) will use the parallel roads in the immediate vicinity of the proposed Route 92 roadway\*. Overall PM peak hour travel time savings for these users are estimated to be about 1.9 minutes on average, totaling 147 hours per day in this time period.

Of the trips that use the parallel roads, 28% will save between two and ten minutes each, with an average savings in this group of 4.7 minutes.

## Travel Time Changes for Users of US Route 1 and Users of NJ Route 27

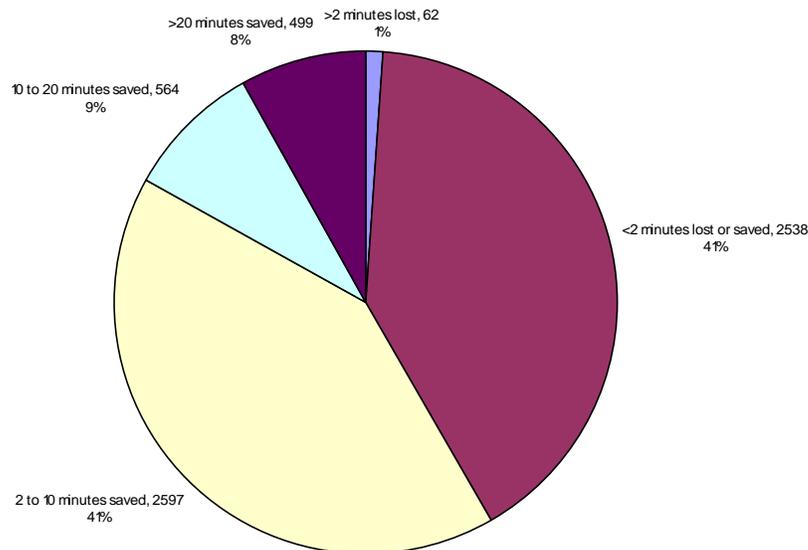
### AM Peak Hour

In the AM peak hour, it is estimated that a total of 6,260 drivers (and their passengers) will use either US Route 1 or NJ Route 27 within the study area.

The results represent trips that pass a particular point on each of these roads in the Kendall Park section of South Brunswick Township. It is anticipated that there will be other users of these roads, many of whom would also experience travel time savings as a result of diversion of traffic from these roads to proposed Route 92.

The diversion of traffic to proposed Route 92 will reduce the traffic volumes on these roads, and the remaining (undiverted) users will benefit as a result. Overall AM peak hour travel time savings for these users are estimated to be about 5.3 minutes on average, totaling 550 hours per day in this time period.

Of the trips that use US Route 1 or NJ Route 27, 41% will see little effect on their travel time in this time period, another 41% will save between two and ten minutes each, with an average savings in this group of 4.7 minutes, and 17% will save more than ten minutes each way.



### PM Peak Hour

In the PM peak hour, it is estimated that a total of 5,260 drivers (and their passengers) will use either US Route 1 or NJ Route 27 within the study area. Overall PM peak hour travel time savings for these users are estimated to be about 4 minutes on average, totaling 353 hours per day in this time period.

Of the trips that use US Route 1 or NJ Route 27, 54% will see little effect on their travel time in this time period, 34% will save between two and ten minutes each, with an average savings in this group of 6.1 minutes, and 11% will save between ten and twenty minutes each, with an average savings in this group of 13.7 minutes.

## White Paper No. 2

### Impact of New Jersey Turnpike Widening and New Pennsylvania Turnpike Interchange

The impact of the proposed widening of the NJ Turnpike mainline between Interchanges 6 and 8A from six to ten lanes – combined with the planned construction of a new interchange directly connecting the Pennsylvania Turnpike with Interstate 95 north of Philadelphia – was evaluated to see if it would affect the need for proposed Route 92 by providing transportation system improvements between the Philadelphia region and the New York region. An element of the evaluation was whether the mainline widening and new Pennsylvania Turnpike interchange would remove truck traffic from US Route 1 in the Philadelphia-to-New York corridor, thereby lessening congestion there and reducing diversions of traffic to the local east-west roads in central New Jersey.

The widening of the six-lane section of the NJ Turnpike mainline south of Interchange 8A would remove a bottleneck for morning northbound traffic (as the 3 northbound lanes south of 8A do not provide enough northbound capacity for the vehicles desiring to use them during peak travel periods - including during weekends) and evening southbound traffic, which are dominated by the increasing number of commuters who live in central New Jersey and work in the northeastern New Jersey/New York City area. The projected diversions from US Route 1 to the local east-west roads in central New Jersey (if proposed Route 92 is not built) are largely unrelated to the mainline congestion. Rather, the east-west diversions to alternative north-south routes are caused by morning congestion on *southbound* US Route 1 and evening congestion on *northbound* US Route 1 (dominated by commuter traffic). They are largely unrelated to travel patterns on the Turnpike mainline.

In addition, most of the traffic projected to use proposed Route 92 in the road network traffic model is traffic that would otherwise be using the local east-west roads in central New Jersey for sub-regional commutation (to commute to jobs in the Princeton area from areas along and east of US-130). These trips would not be affected at all by the proposed Turnpike mainline widening, as their orientation is perpendicular to the Turnpike. (This assertion is supported by the results of recent central Jersey regional model runs performed for NJDOT as part of on-going planning activities there. These runs show that the proposed Turnpike mainline widening has no effect on east-west flows in this area.)

It is possible that the Turnpike widening would actually increase the need for proposed Route 92 by making it easier for Princeton-area-bound commuters from the south and southeast (where development trends are very strong in New Jersey) to use the Turnpike to travel to Interchange 8A, where they would exit and use local roads to access the Route 1/Princeton area. Likewise, the construction of Route 92 would enhance the ability of the Turnpike widening project to divert truck traffic from US Route 1 by providing a new high-speed connection between southern New Jersey and the Princeton area.

Therefore, from a transportation impacts standpoint, the widening of the Turnpike mainline (and construction of the new Pennsylvania Turnpike interchange) would either have no effect on the need for Route 92 or potentially increase the need for Route 92. Essentially, the projects are complementary.