EVALUATING ALTERNATIVE TOLL-BASED FINANCING APPROACHES:

A CASE STUDY OF THE BOSTON METROPOLITAN AREA

A Masters Thesis Presented

by

ROSARIA M. BERLINER

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE CIVIL ENGINEERING

April 2011

Department of Civil and Environmental Engineering
Transportation Engineering

EVALUATING ALTERNATIVE TOLL-BASED FINANCING APPROACHES: A CASE STUDY OF THE BOSTON METROPOLITAN AREA

A Masters Thesis Presented

By

ROSARIA M. BERLINER

Approved as to style and content by:

_____

Dr. John Collura, Chairperson

_____

Dr. Song Gao, Member

_____

Richard N. Palmer
Department of Civil and Environmental Engineering

ACKNOWLEDGEMENTS

First and foremost, I would like to express my sincerest gratitude to my advisor and thesis committee chair Dr. John Collura for his continuous support throughout my Master's coursework and research, for his help, encouragement, motivation, and knowledge of the field. His guidance has helped me in researching and writing the thesis presented today. Without Dr. Collura the level and depth of research could not have been possible.

I would also like to express my appreciation of Dr. Song Gao, the other member of my thesis committee for her continual support and insight throughout the research process.

My sincere thanks also goes to Dr. Daiheng Ni and Dr. Michael Knodler for challenging me through interesting coursework and unique traffic projects.

I thank my fellow colleagues in the transportation engineering program for the stimulating discussions, the weekend study groups, and for all the fun we have had over the past year. I would also like to thank my friends and advisors from my life before UMass: Dr. Vinnie Ferraro, Dr. Giuliana Davidoff, Cuyler Mitchell, Emma Scarloss, Joanna Arcieri, Frazier Angell, Tara Kaleh, Sebastian Fischetti, Keith Fratus, Andy O'Donnell, Nick Colella, Nate Harman, Jessica McIver, and Tom Goldstein.

Last but certainly not least, I would like to thank my family: my parents, grandmother, uncle, and brother for their unconditional love and support throughout my 22 years of life.

ABSTRACT

EVALUATING ALTERNATIVE TOLL-BASED FINANCING APPROACHES:

A CASE STUDY OF THE BOSTON METROPOLITAN AREA

13 MAY 2011

ROSARIA M. BERLINER, A.B., MOUNT HOLYOKE COLLEGE

M.S.C.E., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor John Collura

The current condition of the nation's transportation system is of great concern to State Departments of Transportation. Currently, funds in many state transportation budgets are depleting. Nowadays, State DOT officials together with researchers are exploring various transportation financing approaches and they are considering the utility, merits, challenges, and impacts of these approaches.

A major financing approach being considered relies on the collection of tolls on existing toll roads and on roads on which tolls are not presently collected. Recent technology advancements in Open Road Tolling and All-Electronic Tolling have provided State DOTs with the opportunity to consider expanding the use of toll revenue to finance transportation investments. These two types of tolling technologies appeal to motorists by allowing them to maintain their current highway speed while going through a toll plaza. In addition, many State DOT officials now view toll based approaches as viable "user fee" based strategies together with other alternative approaches such as the fuel tax and sales tax.

Central to this research is a case study of the Boston Metropolitan area. The case study includes the formulation and preliminary evaluation of toll based financing

approaches potentially suitable for consideration in Massachusetts. The approaches include increases to existing tolls and placing tolls on selected roadways not currently tolled. The evaluation includes estimates of changes in demand and anticipated revenues associated with these toll based approaches. It is expected that the results of this research will be of interest to State DOT officials in Massachusetts and other states.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Table Page

CHAPTER 1

1. INTRODUCTION

The current condition of the nation's transportation system is of great concern to State Departments of Transportation (DOT). Currently, funds in many state transportation budgets are depleting. At the present time, State DOT officials together with researchers are exploring various transportation financing approaches and they are considering the utility, merits, challenges, and impacts of these approaches.

A major financing approach being considered relies on the collection of tolls on existing toll roads and on roads on which tolls are not presently collected. Recent technology advancements in Open Road Tolling and All-Electronic Tolling have provided State DOTs with the opportunity to consider expanding the use of toll revenue to finance transportation investments. These two types of tolling technologies appeal to motorists by allowing them to maintain their current highway speed while going through a toll plaza. In addition, many State DOT officials now view toll based approaches as viable "user fee" based strategies together with other alternative approaches such as the fuel tax and sales tax.

CHAPTER 2

2. OBJECTIVES OF THE RESEARCH

The objectives of this research are as follows:

- **Review the experiences and lessons learned** with toll based financing approaches to provide revenue to finance toll road improvements and other transportation investments.
- **Identify the financing questions** of interest to State Departments of Transportation with an emphasis on the questions, issues, challenges, merits, and impacts associated with the evaluation and implementation toll based financing approaches as they compare to other alternative approaches. Examples of such questions are:
    - What are the major financing approaches available to State DOTs to support surface transportation investments?
    - Should tolls be considered as a major approach along with other approaches such as the fuel tax and/or a sales tax?
    - Should current toll levels be increased and should innovative pricing strategies be employed?
    - Should tolls be charged on existing roads where tolls are not currently collected such as state borders and at other locations?
    - What level of revenue can be expected from such toll based approaches and strategies as compared to other approaches and what analytical methods might be used to make these revenue estimates?

- What innovative technologies might be used to facilitate the collection of tolls and what are the expected capital and operating costs?

- **Contribute to the state of practice** by improving our understanding of the alternative financing approaches being considered by State DOTs and the relative levels of revenue that might be generated with such financing approaches. More specifically, the results of this research are expected to shed light on the contribution toll based approaches are able to make relative to the fuel tax and a sales tax. Finally, the results of the research are intended to illustrate the application of simplified analytical methods to estimate the level of revenues expected from toll based approaches.

CHAPTER 3

3. BACKGROUND AND RELATED WORK

As we dive deeper into the economic recession, our nation's roadways continue to deteriorate and transportation funds need to be replenished. In order to restore our nation's roadways to acceptable physical and operating conditions and allow for new transportation projects, various states have invested in researching and developing alternative finance approaches. Oregon, Iowa, Minnesota, New York, along with other states have focused on developing better toll payment systems and other user fee based approaches.

To date, tolls have been considered as appropriate sources of revenue. Initiatives in various forms of tolling have been explored nationally and internationally to fully reap their benefits. A number of states have been at the forefront when it comes to employing innovative toll policies and collection strategies including open-road tolling, cashless tolling, border privatization of toll roads, border tolling and other toll revenue and collection innovations.

What follows is an overview of common financing approaches being used by State DOTs; a more detail description of the innovative toll based approaches being implemented in the U.S.; and a discussion of the issues considered in the design of appropriate financing approaches; and a brief review of the capital and operating costs to implement these toll based approaches.

3.1 Alternative Financing Approaches

As shown in Figure 1, alternative financing approaches for transportation can be broken down into two groups: transportation and non-transportation related. (16)

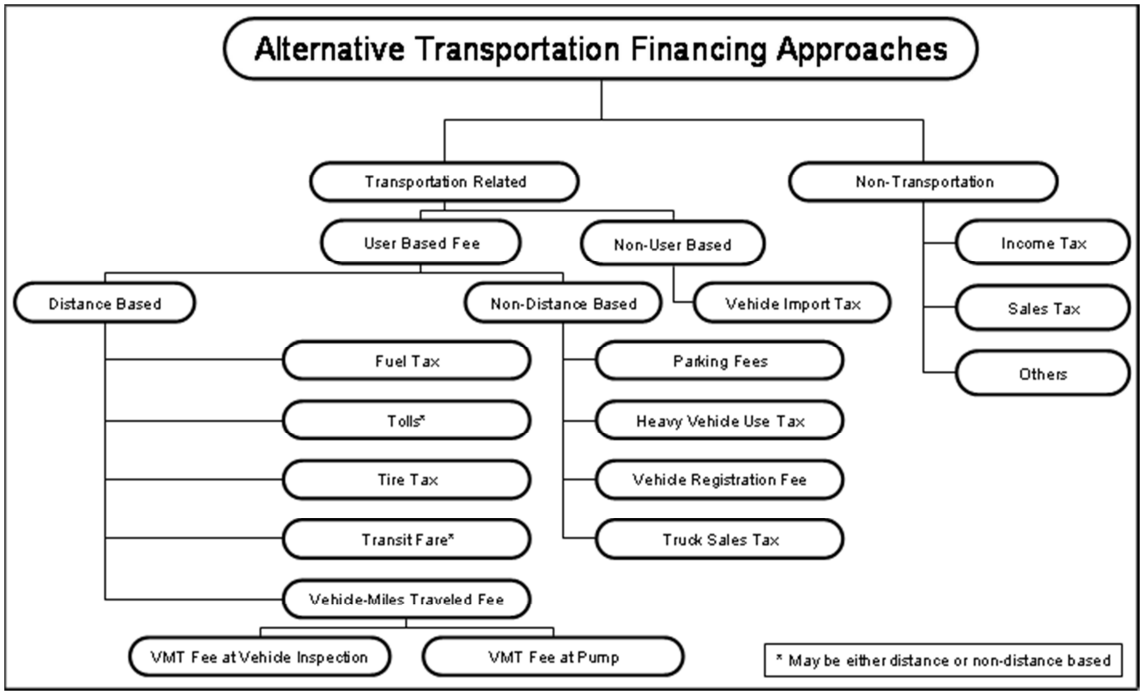
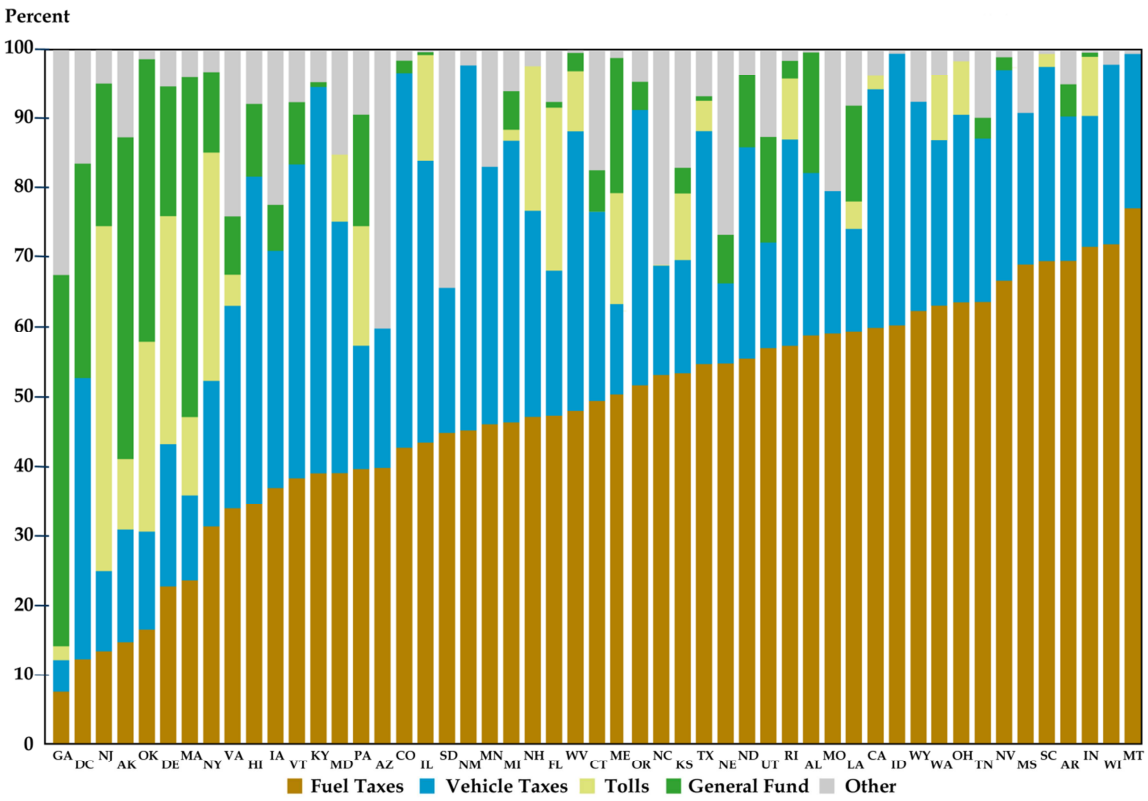


Figure 1. Alternative Transportation Financing Approaches

In the non-transportation group, states have the ability to use the income and sales taxes as a means to finance transportation. It is not uncommon for some states to use a portion of their sales tax to fund public transit. Within the transportation group, state officials will rely on fees including the fuel tax, tolls, tire tax, and in some cases a vehicle-miles traveled fee. Figure 2 shows by state the different financing approaches used in 2004. (15)



Source: 2004 Highway Statistics, Table SF-1

Figure 2. Transportation Revenue Sources, State by State, 2004.

Another financing approach being considered by State DOTs is the so-called vehicle-miles traveled (VMT) fee which could be paid at the pump or at an inspection station. The Oregon Department of Transportation ran a pilot program in 2006 showcasing the possibility of paying a VMT at the pump. (16)

More recently, initiatives in alternative financing approaches undergone by Texas DOT, the New York State Thruway Authority and the New York MTA indicate promise for technological advancement in toll collection throughout the country. These initiatives are reviewed below.

3.2 Toll Based Financing Approaches

3.2.1. ORT

At approximately 5am, Friday, May 14, 2010, the Highway Speed E-ZPass toll lanes at the Woodbury Toll Plaza opened on the New York State Thruway (NY Thruway). It is the first location on the Thruway that bolsters open-road tolling (ORT) for both passenger and commercial vehicles. (1) These lanes allow vehicles to pass through the intersection at the highway speed of 65mph. A similar initiative was undergone in 2007 at the Spring Valley Toll Plaza; however, the toll plaza only serves commercial vehicles. Four highway speed lanes have been added to the toll plaza two in each direction. (2) The $85 million project is envisioned to be successful. Although the Highway Speed E-ZPass lanes have been opened construction was scheduled to be completed in September 2010. (3) More than 42,000 vehicles pass through the toll plaza on an average day and that number rises to 62,000 per day during the summer and holiday weekends. (1, 5, 6) The NY Thruway Authority decided to proceed with the project in this location because of the heavy congestion seen daily at the toll plaza. (2) The new high speed lanes will reduce congestion in the entire toll plaza, increase capacity, and reduce the adverse effects on the environment. New York officials have been very excited about the project stating that it will help in New York's dedication to creating a greener State. (1)

3.2.2 AET

Announced in the Making Every Dollar Count report released by the Metropolitan transportation Authority (MTA) in January 2010, the Henry Hudson Bridge is the MTA's first test location for a non-stop all electronic toll collection site. (7) This is a two phase project. Phase 1 which introduces a gateless tolling scheme, where gates will be removed and cameras will be installed for enforcement barriers will remain intact is scheduled to be completed in mid-January 2011. Phase 2, which will eliminate cash collection completely and the entire toll plaza will turn to all-electronic toll collection, is scheduled to be completed by January 2012. (8) The project is expected to cost about $10 million with phase 1 costing about $4.6 million and phase 2 costing about $5.4 million. (8) The Henry Hudson Bridge toll plaza will be the first AET collection plaza in an urban and densely populated area. (9)

The Henry Hudson Bridge was chosen for the following reasons: there are no nearby entries and exits and thus there are potential savings from not proceeding with an otherwise necessary rebuild of the toll plaza; there is a high out-of-state component to the traffic (NJ, CT, PA drivers) so interstate collection can be tested; the Parkway serves cars-only so there are no vehicle classification complications; and the Parkway is a medium sized facility with 60,000 to 70,000 transactions/day. (8)

During Phase 1 they plan to remove the gate and install cameras. Initially, the cameras will be used to identify violators and later (more likely in Phase 2) to do toll-by-plate of vehicles without a transponder. There is a proposed violation fee of $50 for those who do not have a transponder during Phase 1; however, the fee is anticipated to be revenue neutral the income from the fees are designed to offset the cost of collection and

inescapable toll revenues. (8) Phase 2 will begin around January 2012 when the plaza will go cashless. From this point on and conditions permitting, all traffic will go through the plaza and toll at highway speed. Payment will be accepted through various means: on-line, phone, mail, or payment agencies. (8) MTA Bridges and Tunnels President Jim Ferrara says the new traffic pattern leading into Manhattan will result in a smoother transition for drivers coming onto the Bridge from the two-lane Henry Hudson Parkway. (9)

3.2.3 Texas Tolling

The Central Texas Turnpike System (CTTS), in Texas, opened three turnpikes, SH130 tolls 1-4, SH45 North, and Loop 1 in 1998. Each roadway is equipped with Open Road Tolling (ORT), video tolling, and traditional cash tolling that are used concurrently as means of toll payment. In center lanes, highways are ORT is used in conjunction with video tolling. In order to use the system developed in Texas, users either sign up for a TxTag, a transponder placed inside the vehicle. The TxTag uses a system similar to that of the Fast Lane and EZ-Pass passes in which users create an account from which funds are drawn or to which charges are billed. If the user does not sign up for the TxTag, they are still able to use the highway speed toll lanes and are tolled by video tolling. In CTTS' case, video tolling has progressed beyond violation detection to general toll payment. Any vehicle that passes through the ORT facility that does not have a transponder has their license plate captured on video. This picture is then processed and the registered owner of the vehicle receives a bill in the mail, dubbed "Pay by Mail." Processing and late fees are applied if the bill is not paid on time. Additionally, CTTS has cash toll lanes

on these roadways to allow the user to pay in cash if they so choose. Since its inception, more turnpike sections have been developed. The North Texas Tollway Authority (NTTA) currently operates two toll roads with AET. These roads either use ORT and video tolling or just ORT. In instances where the roadway is only ORT, users have to have a transponder.

Over the two year period, from 2007 to 2008, the CTTS processed about 99 million toll transactions. More than half of these transactions used the ORT/video tolling. In 2009, CTTS had 73 million transactions, generating about $59 million from tolls. The total revenue for 2009 was $61,674,500. About 74% of vehicles used a transponder on the turnpikes. About 17% of the toll transactions used the video tolling system and 9.3% of the transactions used the old cash system. (12)

Since, video tolling costs more than using transponders due to image processing, CTTS charges 25% more for "Pay by Mail" than by transponder, plus a $1.00 processing fee. To encourage users to sign up for a transponder, each "Pay by Mail" bill comes with literature and an application for a transponder. There has been about 20% non-payment of video tolls. Texas does not use refusal of renewal of registration for unpaid tolls so they have to take violators to Justice of the Peace courts—this has made it difficult to for the state to collect toll payments. Unbillable tolls, from poor license plate reads are about 2% of total transactions, 11% of total plate reads. TxDot/CTTS outsources plate readings to a company that uses optical character recognition (OCR). Unbillable tolls were due to poor image quality, obscured plates, US Government plate, non-US plate or no license plate because no address could be found in the DMV vehicle registration database. (13) Factors that affect license plate identification/recognition (LPI/R) readings include, poor

image resolution, blurry images, poor lighting and contrast, obscured plates, out of state or vanity plates, and circumvention techniques.

3.2.4 NCHRP

In 2006, the National Cooperative Highway Research Program (NCHRP) released Synthesis 364: Estimating Toll Road Demand and Revenue. This synthesis gives a detailed analysis of toll road forecasting in terms of demand changes and revenue changes. Through the use of the four-step process NCHRP contributors affirm that changes in demand can be modeled and estimated.

"The demand for travel is a derived demand." (14) There are several factors that need to be considered when deriving demand: human activities, demographic location, socioeconomic issues, as well as land-use. In order to create a successful model, the four-step model is created using a three step process: input, process, and output. The "inputs" are defined to be factors such as zone definition, land-use inputs, transportation network, and observed travel characteristics. Secondly, the process is where the "four-step" process earns its name. The process is comprised of four steps which are trip generation, trip distribution, modal split, and trip assignment. The final part of the four-step process composition is the outputs. The outputs are "volumes by link and ridership numbers." (14) These numbers can be used to identify costs and revenues of a tolled facility.

As previously implied, there is a relationship between demand and revenue forecasts in that "revenue forecasts are **dependent** on travel demand forecasts and the assumptions on which the travel forecasts were based." It is not surprising that there is a proportional relationship between the uncertainty in revenue forecasts and the uncertainty

in travel demand forecasts. Moreover, revenue forecasts are dependent on the tolling technology, fare, and structure (schedule). Tolling schemes sometimes include discounts for electronic tolling, such as the FastLane pass, or multipass users, heavy vehicle fares, and variable tolling practices. "Increases in toll rates can also affect the demand, especially as some authorities have elected to increase toll rates more sharply than projected to quickly generate revenues in the short term." (14)

Calculating estimated toll revenues is similar to peeling an onion: as the tolling scheme becomes more complex, more layers of considerations are made. In general, travel demand forecasts are developed for a weekday peak hour or peak period. In order to apply generalized daily and yearly traffic volumes, conversion factors are used. Furthermore, revenue is then estimated by multiplying the forecast volume by the toll amount taking into account different toll rates, toll evasion, and discounts.

3.2.5 Implementation Costs

Within the context of this research, there are two sets of capital and operating costs that need to be considered: costs for the Massachusetts' Turnpike (an existing toll road) and costs for Interstate 93 (a road on which tolls are not currently collected). Since no construction or structural changes will be made to the Massachusetts' Turnpike estimating those capital and operating costs are relatively simple to determine; whereas with Interstate 93, the literature on Open-Road and video tolling needed to be reviewed to shed light on this project.

Capital cost estimates include items such as transponder costs, processing center, and telecommunication systems. Furthermore the cost of minor items is included in the

contingency component, which is usually about 10% of the total itemized capital costs. Operational cost estimates consider major items: maintenance and salary and benefits associated with toll road personnel.

In 2009, the operating expenses for the western portion of the Massachusetts' Turnpike were $66,696,000 for the fiscal year. (17) Repair and reconstruction costs for the western portion of the Massachusetts' Turnpike in 2007 were $8,000,000. Moreover, for the 2007 fiscal year the operations and policing costs for the Boston Extension was approximately $52,000,000. The repair and reconstruction costs for the Boston Extension were about $12,000,000 for the year 2007. (18) Since there would be no "new" construction for this project, the capital cost to increase the existing tolls on the Massachusetts' Turnpike portions is assumed to be $0.00.

In 2004, the New York State Thruway Authority estimated that they would spend between $30 and $50 million for each highway speed toll plaza installed on the Thruway – 6 years later the actual cost for the new toll plaza that opened in May 2010 was about $75 million. (2, 19) On the other hand, the All-Electronic Tolling project being done on the Henry Hudson toll plaza is contracted for about $10 million. The magnitude of the proposed project for Interstate 93 better aligns with the Henry Hudson toll plaza because each on ramp can be considered a "medium-sized" facility. Since the ownership of transponders for the Boston metropolitan area is unknown, it is assumed that the Commonwealth will spend approximately 10% of the capital costs on this equipment, about $1 million. Therefore, a preliminary order of magnitude estimate of the capital costs for the implementation of tolls on Interstate 93 is $111 million. The capital costs are projected to be $111 million because there are 11 exits that are being considered and it is

estimated that each exit will cost approximately $10 million. Since the Henry Hudson toll plaza is a two level plaza, it is not unreasonable to group the north and southbound exits in to one estimate.

In a side by side comparison of Interstate 93 and the Henry Hudson, it is shown that the average annual daily traffic (AADT) at each exit on Interstate 93 is lower than the Henry Hudson toll plaza. Furthermore, the $75 million used for the Woodbury toll plaza in Upstate New York was used for the construction of the toll plaza as well as additional repairs to the current toll booths and roadway.

The anticipated operating costs on I-93 would include personnel and repairs and maintenance. It was assumed that there would be about 30 personnel hired by MassDOT to manage the AET I-93 project. The average salary of personnel for the Massachusetts Turnpike was assumed to be $70,000 a year. Additionally, it is assumed that the maintenance cost of the Interstate 93 facilities will be about $200,000 annually or 15% of the equipment capital costs and 5% of the processing center costs.

3.3 Designing Appropriate Transportation Financing Approaches

The design of an appropriate financing approach is not a trivial task. As part of the design process, State DOT officials consider a number of questions including:

- What are the major financing approaches available to State DOTs to support surface transportation investments?
- Should tolls be considered as a major approach along with other approaches such as the fuel tax and/or a sales tax?

- Should current toll levels be increased and should innovative pricing strategies be employed?
- Should tolls be charged on existing roads where tolls are not currently collected such as state borders and at other locations?
- What level of revenue can be expected from such toll based approaches and strategies as compared to other approaches and what analytical methods might be used to make these revenue estimates?
- What innovative technologies might be used to facilitate the collection of tolls and what are the expected capital and operating costs?

Figure 3 presents a framework that suggests that there are four major elements that need to be considered in the design and evaluation of a transportation financing approach including establishing policy objectives; determining revenue sources; identifying short and long term implications; and assessing impacts. (16)

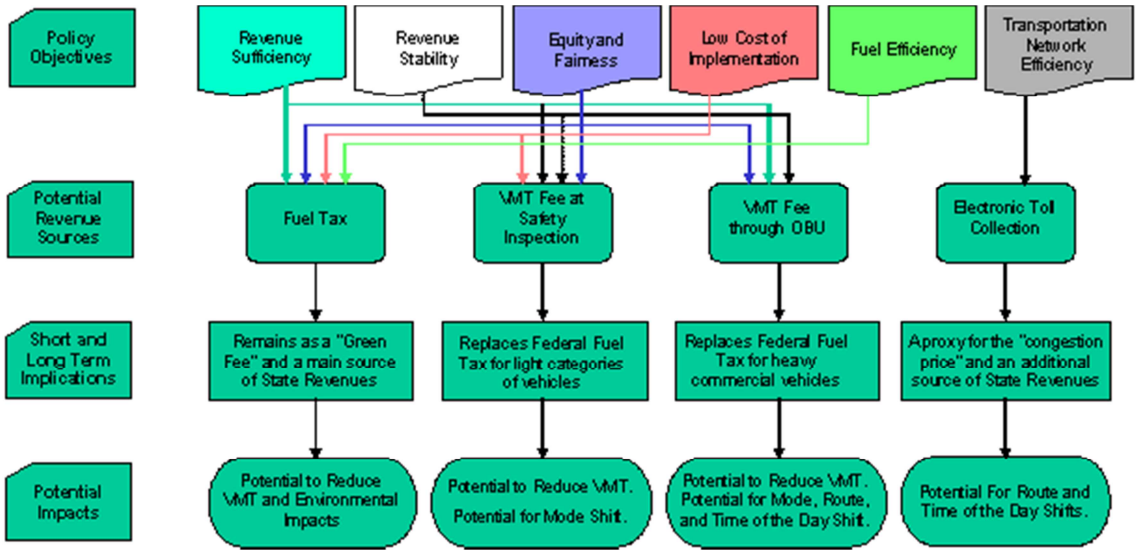


Figure 3. Alternative Finance Approaches Framework.

As depicted in Figure 3, the Fuel Tax, VMT Fee at Safety Inspection, and VMT through OBU (On-Board Unit), all have implications within revenue sufficiency, revenue

stability, equity, and low cost implications. It is important to note in light of the objectives of this research that all electronic toll (AET) collection has proven in certain cases to be successful in the collection of an adequate, stable, equitable, and fuel efficient source of revenue. Furthermore, in cases where the route is heavily traveled (such as Interstates 90 and 93) there is an expectation of revenue stability, because the demand for toll road service has been shown historically on existing toll roads to be inelastic with respect to changes in toll levels. Moreover, implementing tolls on roadways that are not currently tolled, as is the case with North South Interstate 93, has the potential to satisfy equity concerns vis a vis those who pay tolls on the East West Mass Turnpike. In addition, implementing a congestion pricing scheme on Interstate 93 may reduce travel time for those traveling during the peak hours.

CHAPTER IV

4. RESEARCH METHODOLOGY

4.1 Research Objectives

As presented in section 2, the research objectives are as follows:

- **Review the experiences and lessons learned** with toll based financing approaches to provide revenue to finance toll road improvements and other transportation investments.
- **Identify the financing questions** of interest to State Departments of Transportation with an emphasis on the questions, issues, challenges, merits, and impacts associated with the evaluation and implementation toll based financing approaches as compared to other alternative approaches. Examples of such questions are:
    - What are the major financing approaches available to State DOTs to support surface transportation investments?
    - Should tolls be considered as a major approach along with other approaches such as the fuel tax and/or a sales tax?
    - Should current toll levels be increased and should innovative pricing strategies be employed?
    - Should tolls be charged on existing roads where tolls are not currently collected such as state borders and at other locations?
    - What level of revenue can be expected from such toll based approaches and strategies as compared to other approaches and what analytical methods might be used to make these revenue estimates?

- What innovative technologies might be used to facilitate the collection of tolls and what are the expected capital and operating costs?

- **Contribute to the state of practice** by improving our understanding of the alternative financing approaches being considered by State DOTs and the relative levels of revenue that might be generated with such financing approaches. More specifically, the results of this research are expected to shed light on the contribution toll based approaches are able to make relative to the fuel tax and a sales tax. Finally, the results of the research will illustrate the application of simplified analytical methods to estimate the level of revenues expected from toll based approaches.

4.2 Tasks

In order to achieve the research objectives, the following tasks should be accomplished:

Task 1: Review literature signifying the importance of alternative finance approaches in transportation.

Task 2: Describe the toll approaches to be evaluated and their intended policy objectives.

Task 3: Conduct a case study by formulating toll based approaches and estimating changes in demand and expected revenues using elasticity methods.

A description of each task is provided below.

4.2.1 Task 1: Carry out Literature Review

Task 1 will consist of a literature review on the subject of transportation financing. Literature will be drawn from government reports, scholarly journal articles, university research reports, and other sources. An emphasis will be placed on reviewing

ongoing toll road projects in Texas, New York, and other states in which innovative toll strategies and technologies are being considered. In addition, widely used analytical methods for estimating toll revenues will be described. Finally, the issues, questions, and concerns of interest to State DOT officials as they consider alternative financing approaches regarding will also be discussed. These questions will be used as a basis in the in the formulation of the alternative financing approaches formulated in Task 2 and in conduct of the case study in Task 3.

4.2.2 Task 2: Formulate Alternative Financing Approaches

There are three toll based financing approaches that will be evaluated as part of this research. These three approaches are:

1. Increase tolls on Interstate 90 by 10% each year and impose no tolls on Interstate 93
2. Increase tolls on Interstate 90 for one year and impose a flat rate toll of $1.00 on Interstate 93
3. Increase tolls on Interstate 90 for one year and impose a $1.00 toll on Interstate-93 as well as a congestion toll of an additional $0.50 during the peak travel periods.

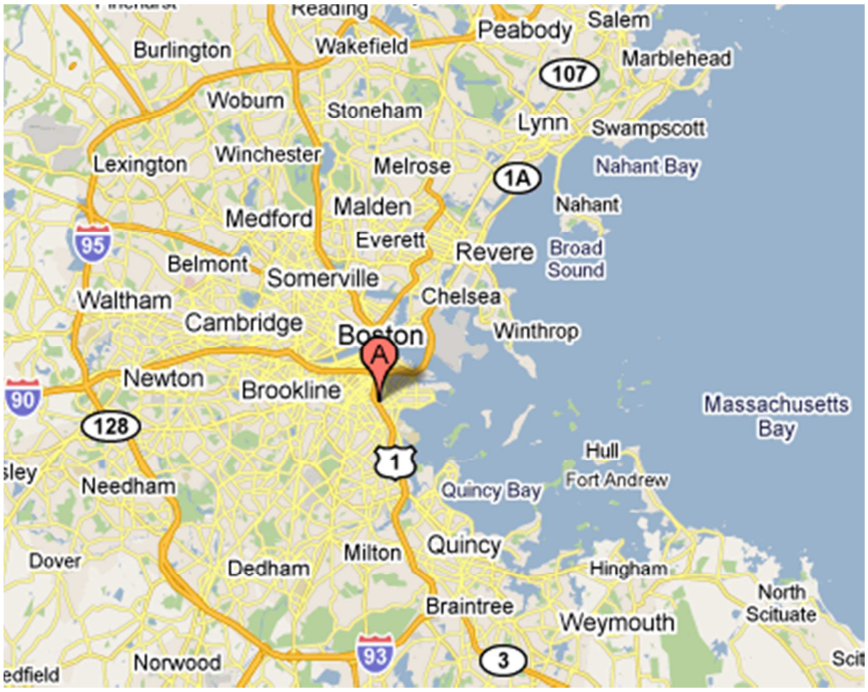


Figure 4. Boston Metropolitan Area Map

Figure 4 depicts the Boston metropolitan area. To the left of the "A" marker, lies Interstate 90 (also known as the Massachusetts Turnpike). North and south of the marker from Braintree to Woburn lies Interstate 93– the highway on which toll implementation is being considered.

The expectation is that raising tolls (including congestion pricing strategies) on the currently tolled Interstate 90 and imposing similar toll strategies on Interstate 93 will generate additional revenue for future transportation investments and possibly reduce peak period congestion.

4.2.3 Task 3

Based on current revenue and demand data and other information compiled by the Central Transportation Planning Staff (CTPS) and others on the East-West Interstate 90 (also referred to as the MassPike) and the North-South Interstate 93, changes in demand and expected revenue along both roadways will be examined for three proposed toll

based approaches using empirically derived toll elasticity values in conjunction with sensitivity analyses.

As stated in Task 2, there are three toll based financing approaches that will be evaluated. These three approaches are:

1. Increase tolls on Interstate-90 by 10% each year and impose no tolls on Interstate-93
2. Increase tolls on Interstate-90 for one year and impose a flat rate toll of $1.00 on Interstate-93
3. Increase tolls on Interstate-90 for one year, impose a $1.00 toll on Interstate-93 as well as a congestion toll of an additional $0.50 during the peak travel periods.

The data supplied by CTPS will allow for the generation of a model for the North-South roadways surrounding the Boston metropolitan area that are not tolled. Using the data, estimates will be developed that map the change in demand experienced when tolls are installed on these roadways on which tolls are not presently collected. This change in demand will then be used to estimate revenue for the new tolls. On Interstate 93 changes in demand and revenue for a $1 and $1.50 toll as well as a incorporating a congestion pricing scheme will be evaluated. For Interstate 93, open-road tolling technology as well as all-electronic payment technology would be the only toll collection option considered, in order to maintain the current flow of traffic.

CTPS data also will be used to further analyze changes in demand and revenue when the toll fares on Interstate 90 are increased. Using this data, changes in demand based on increased toll fares are estimated. Furthermore, after having calculated the demand change, the change in revenue can also be calculated.

CHAPTER V

5. RESEARCH ANALYSIS AND RESULTS

5.1 Demand and Revenues

Demand and revenue forecasting is never a simple task. Multiple variables need to be considered when approximating changes in demand. The sections below thoroughly outline and describe analytical methods used to estimate changes in demand on roadways when; a) tolls are increased on roadways that currently have tolls; b. tolls are implemented on roadways that are not currently tolled. Two methods of analysis were used: point elasticity and iterative arc elasticity.

5.1.1 Mass Turnpike: The Boston Extension

In January 2010, Cambridge Systematics (CS) prepared a report for the Massachusetts' Department of Transportation that focused on traffic and revenue in the Commonwealth of Massachusetts. This report details the toll transactions, toll revenues, and average toll on the Boston Extension of the Massachusetts' Turnpike. The Boston Extension includes exits 15 to 26 on the Massachusetts' Turnpike. Geographically users who travel on the Boston Extension can travel between Newton, Massachusetts and Logan International Airport. Using this data, an approximated yearly revenue was generated using an elasticity based method for a proposed 10% increase on all tolls on the Turnpike Extension. Furthermore, a sensitivity analysis was conducted to show the impacts of a various elasticity assumptions on revenues.

First and foremost, the data extracted from Table 1 supplied the "original" demand, revenue, and toll prices.

Table 2.8 2009 versus 2008 Toll Transactions and Toll Revenue by Month

	Toll Transactions			Toll Revenue			Average Toll		
Month	2008	2009	Percent Change	2008 (Dollars)	2009 (Dollars)	Percent Change	2008 (Dollars)	2009 (Dollars)	Percent Change
Boston Extension									
January	5,519,797	5,012,039	-9.2%	6,333,613	5,701,418	-10.0%	1.15	1.14	-0.9%
February	5,268,526	4,904,223	-6.9%	6,040,721	5,557,837	-8.0%	1.15	1.13	-1.2%
March	5,830,713	5,512,302	-5.5%	6,674,466	6,230,412	-6.7%	1.14	1.13	-1.3%
April	5,903,935	5,650,435	-4.3%	6,779,977	6,395,176	-5.7%	1.15	1.13	-1.4%
May	6,044,486	5,804,814	-4.0%	6,960,449	6,574,404	-5.5%	1.15	1.13	-1.6%
June	5,798,167	5,738,387	-1.0%	6,680,633	6,496,568	-2.8%	1.15	1.13	-1.7%
July	5,634,641	5,655,532	0.4%	6,512,707	6,417,071	-1.5%	1.16	1.13	-1.8%
August	5,550,527	5,553,963	0.1%	6,425,689	6,313,145	-1.8%	1.16	1.14	-1.8%
September	5,689,641	5,628,847	-1.1%	6,545,288	6,361,542	-2.8%	1.15	1.13	-1.8%
October	6,018,436	5,948,223	-1.2%	6,910,569	6,707,969	-2.9%	1.15	1.13	-1.8%
November	5,344,727	5,443,998	1.9%	6,100,426	6,120,794	0.3%	1.14	1.12	-1.5%
December	5,157,398	5,373,289	4.2%	5,875,509	6,042,163	2.8%	1.14	1.12	-1.3%
Total	**67,760,994**	**66,226,052**	**-2.3%**	**77,840,046**	**74,918,499**	**-3.8%**	**1.15**	**1.13**	**-1.5%**
Tunnels									
January	1,571,531	1,437,340	-8.5%	5,552,556	4,978,964	-10.3%	3.53	3.46	-2.0%
February	1,522,647	1,389,852	-8.7%	5,406,472	4,800,820	-11.2%	3.55	3.45	-2.7%
March	1,721,301	1,613,355	-6.3%	6,133,669	5,603,123	-8.6%	3.56	3.47	-2.5%
April	1,723,964	1,620,336	-6.0%	6,151,708	5,607,243	-8.9%	3.57	3.46	-3.0%
May	1,799,635	1,721,400	-4.3%	6,420,781	5,962,077	-7.1%	3.57	3.46	-2.9%
June	1,784,140	1,724,016	-3.4%	6,384,447	5,973,071	-6.4%	3.58	3.46	-3.2%
July	1,759,165	1,774,237	0.9%	6,233,407	6,129,171	-1.7%	3.54	3.45	-2.5%
August	1,757,576	1,775,579	1.0%	6,221,428	6,138,253	-1.3%	3.54	3.46	-2.3%
September	1,648,027	1,685,177	2.3%	5,857,393	5,861,652	0.1%	3.55	3.48	-2.1%
October	1,739,321	1,785,208	2.6%	6,177,475	6,245,454	1.1%	3.55	3.50	-1.5%
November	1,543,909	1,626,422	5.3%	5,401,681	5,630,699	4.2%	3.50	3.46	-1.0%
December	1,531,920	1,620,728	5.8%	5,324,455	5,543,142	4.1%	3.48	3.42	-1.6%
Total	**20,103,136**	**19,773,650**	**-1.6%**	**71,265,471**	**68,473,669**	**-3.9%**	**3.54**	**3.46**	**-2.3%**

Source: MassDOT.

Table 1. Toll Transactions and Toll Revenue by Month

More specifically, the 2008 data provided an original demand of 67,760,994 toll transactions, a base revenue of $77,840,046 for the year 2008, and an average toll of $1.15. Moreover, the new toll was set to be $1.27 or 10% higher than the 2008 average toll. It should be further noted that although the 2009 data was available, the data used for the I-93 analysis was from 2007 and it was used to maintain consistency.

Mathematically, the equation is: $\varepsilon = \frac{\frac{Old\ Demand - New\ Demand}{Old\ Demand}}{\frac{Old\ Price - New\ Price}{Old\ Price}}$. Substituting constant numbers, the equation is: $\varepsilon = \frac{\frac{67{,}760{,}994 - New\ Demand}{67{,}760{,}994}}{\frac{1.15-1.27}{1.15}}$. In order to demonstrate the impact of a varying elasticity, new demands were calculated for each elasticity value of -0.05 to -0.2 with increments of 0.05. Below are the calculated demands with the appropriate ε.

$\varepsilon = -0.05$

$$-0.05 = \frac{\frac{67{,}760{,}994 - New\ Demand}{67{,}760{,}994}}{\frac{1.15 - 1.27}{1.15}}$$

$$New\ Demand = 67{,}407{,}458\ toll\ transactions$$

$$New\ Revenue = \$1.27 * 67407458 = \$85{,}607{,}471/year$$

$\varepsilon = -0.10$

$$-0.10 = \frac{\frac{67{,}760{,}994 - New\ Demand}{67{,}760{,}994}}{\frac{1.15 - 1.27}{1.15}}$$

$$New\ Demand = 67{,}053{,}900\ toll\ transactions$$

$$New\ Revenue = \$1.27 * 67053900 = \$85{,}158{,}453/year$$

$\varepsilon = -0.15$

$$-0.15 = \frac{\frac{67{,}760{,}994 - New\ Demand}{67{,}760{,}994}}{\frac{1.15 - 1.27}{1.15}}$$

$$New\ Demand = 66{,}700{,}387\ toll\ transactions$$

$$New\ Revenue = \$1.27 * 66700387 = \$84{,}709{,}491/year$$

$\varepsilon = -0.20$

$$-0.20 = \frac{\frac{67{,}760{,}994 - New\ Demand}{67{,}760{,}994}}{\frac{1.15 - 1.27}{1.15}}$$

$$New\ Demand = 66{,}346{,}851\ toll\ transactions$$

$$New\ Revenue = \$1.27 * 66346851 = \$84{,}260{,}500/year$$

Given a varying elasticity from -0.05 to -0.2, the revenue fluctuates from approximately $85.6 million to $84.2 million. Since Cambridge Systematics calculated an elasticity of -0.06, it would be appropriate to consider the second elasticity of -0.1 in order to conservatively estimate revenue.

Elasticity	ε = -0.05		ε = -0.10	
	Base	Forecasted	Base	Forecasted
Demand	67,760,994	67,407,458	67,760,994	67,053,900
Revenue	$77,925,143	$85,607,471	$77,925,143	$85,158,453

Elasticity	ε = -0.15		ε = -0.20	
	Base	Forecasted	Base	Forecasted
Demand	67,760,994	66,700,387	67,760,994	66,346,851
Revenue	$77,925,143	$84,709,491	$77,925,143	$84,260,500

Table 2. Demand and Revenue for the Boston Extension

5.1.2 Mass Turnpike: Western Portion

The Central Transportation Planning Staff provided corridor counts for all major highways surrounding the Boston metropolitan area. These corridor counts include a portion of the tolled Massachusetts' Turnpike (Interstate 90 or I90) as well the untolled Interstate 93 (or I93). Since all the toll based approach alternatives examined include I90, our primary focus was to create an appropriate method to estimate revenues based on the data provided. Since I90's tolling scheme is based primarily on distance, Origin-Destination (O-D) tables were needed to generate accurate estimates of revenue; however, CTPS provided volume counts rather than the coveted O-D tables. In order to circumvent the lack of O-D tables, the toll level from exits 11 to 14 was used as an "average" toll. Therefore, the revenues estimated below for the Massachusetts' Turnpike (Eastbound), should be considered to be *very* conservative values.

In order to more accurately approximate revenues, the analysis of the Turnpike was split into the eastbound and westbound directions.

5.1.2.1 Eastbound Direction

First, the eastbound direction was considered. Since the volume on the Turnpike increased as motorists traveled towards Boston, the only exit volume data considered was at exit 14 (the last exit before the start of the Boston Extension, which was analyzed separately above). In this instance, it was assumed that the old price of the exit toll was $1.10 and that a 10% increase in that price would be $1.21. Furthermore, in order to showcase the impacts of a varying elasticity, several elasticity values were used in order to generate new demands as well as revenues. The average volume (per day) on I90 eastbound at exit 14 was 46,233 vehicles. The demand calculations for different elasticities are shown below.

In this analysis, epsilon, $\varepsilon = \frac{\frac{46233-x}{46233}}{\frac{1.10-1.21}{1.10}}$, where x represents the New Demand. Elasticity values of -0.05, -0.10, -0.15, and -0.20 were used to calculate different x's.

$\varepsilon = -0.05$

$$-0.05 = \frac{\frac{46233 - x}{46233}}{\frac{1.10 - 1.21}{1.10}}$$

$$New\ Demand = 46002$$

$$Average\ Daily\ Revenue = \$55{,}662/day$$

$\varepsilon = -0.10$

$$-0.10 = \frac{\frac{46233 - x}{46233}}{\frac{1.10 - 1.21}{1.10}}$$

$$New\ Demand = 45771$$

$$Average\ Daily\ Revenue = \$55{,}383/day$$

$\varepsilon = -0.15$

$$-0.15 = \frac{\frac{46233 - x}{46233}}{\frac{1.10 - 1.21}{1.10}}$$

$$New\ Demand = 45540$$

$$Average\ Daily\ Revenue = \$55{,}103/day$$

$\varepsilon = -0.20$

$$-0.20 = \frac{\frac{46233 - x}{46233}}{\frac{1.10 - 1.21}{1.10}}$$

$$New\ Demand = 45308$$

$$Average\ Daily\ Revenue = \$54{,}823/day$$

To show that the above values were considered liberal, a link-by-link analysis of the eastbound segment was done. In a link-by-link analysis, it was considered that each segment of roadway has a toll level – in this case the toll is the original toll that is charged if a motorist were to enter and exit the turnpike at each entry and exit point (respectively). Tables 3 through 6 summarize this analysis.

Exit 11 to Exit 11a:

Original Demand: 33219
Original Price: $0.45
New Price: $0.50

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	33035	32850	32665	32481
Estimated Revenue/ day	$16352	$16261	$16169	$16078

Table 3. Demand and Revenue Values for I-90E Exit 11 to 11a

Exit 11a to Exit 12:

Original Demand: 36027
Original Price: $0.25
New Price: $0.28

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	35811	35595	35379	35162
Estimated Revenue/ day	$9848	$9789	$9729	$9670

Table 4. Demand and Revenue Values for I-90E Exit 11a to 12

Exit 12 to Exit 13:

Original Demand: 40000
Original Price: $0.30
New Price: $0.33

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	39800	39600	39400	39200
Estimated Revenue/ day	$13134	$13068	$13002	$12936

Table 5. Demand and Revenue Values for I-90E Exit 12 to 13

Exit 13 to Exit 14:

Original Demand: 46233
Original Price: $0.30
New Price: $0.33

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	46002	45771	45540	45308
Estimated Revenue/ day	$15181	$15104	$15028	$14952

Table 6. Demand and Revenue Values for I-90E Exit 13 to 14

It can then be assumed that the average daily revenue for this portion of the Massachusetts' Turnpike using a link-by-link analysis would be $54,515 for an elasticity value of -0.05, $54,222 for an elasticity value of -0.1, $53,929 for an elasticity value of -

0.15, and $53,635 for an elasticity value of -0.2. In the link-by-link analysis, the average daily revenue was smaller than the aggregate data used above. Table 7 summarizes this analysis.

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
Aggregate Revenue	$55,662	$55,383	$55,103	$54,823
Link-by-link Revenue	$54,515	$54,222	$53,929	$53,635

Table 7. Side by Side Revenue Analysis

In order to make a comparison between the current toll prices and the proposed toll prices, current revenues for Exit 11 to Exit 14 were approximated. In order to estimate these toll revenues, the link volume was multiplied by the toll price. Table 8 gives a summary of the original revenue values.

Original Values - I90E			
Eastbound	Volume	Toll Price	Revenue
Exit 11 to 11a	33219	$0.45	14949
Exit 11a to 12	36027	$0.25	9007
Exit 12 to 13	40000	$0.30	12000
Exit 13 to 14	46233	$0.30	13870
Total Revenue			$49,825

Table 8. Original Revenue I-90E

As shown in the analysis, the proposed increase in tolls would result in an increase of $4,000 per day or approximately $1 million per year for eastbound weekday toll transactions.

5.1.2.2 Westbound Direction

On the Massachusetts' Turnpike Westbound, the similar calculations were done. In this case, as motorists headed west towards the New York state border, they exited the turnpike, which allowed for a higher understanding of the data. Below is the general formula of the calculations done for a portion of the Massachusetts' Turnpike westbound.

Like the analysis done for the eastbound direction of the turnpike and the Boston Extension, several elasticity values were used to calculate approximates for the New Demand. As before, epsilon, ε, was set equal to the percent change in demand over the percent change in price. The equation was written as $\varepsilon = \frac{\frac{Old\ Demand - New\ Demand}{Old\ Demand}}{\frac{Old\ Price - New\ Price}{Old\ Price}}$. From there, constant values were substituted which yielded a more condensed equation. The revenues calculated below provide a conservative estimate of potential revenue if the toll price along the turnpike were to increase by 10%.

Below, Tables 9 through 12 summarize the estimated revenues and new demand for each exit.

Exit 14 to Exit 13:
Original Demand: 48356
Original Price: $0.30
New Price: $0.33

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	48114	47872	47631	47389
Estimated Revenue/ day	$15878	$15798	$15718	$15638

Table 9. Demand and Revenue Values for I-90W Exit 14 to 13

Exit 13 to Exit 12:
Original Demand: 41027
Original Price: $0.30
New Price: $0.33

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	40822	40617	40412	40207

Estimated Revenue/ day	$13471	$13404	$13336	$13268

Table 10. Demand and Revenue Values for I-90W Exit 13 to 12

Exit 12 to Exit 11:
Original Demand: 35822
Original Price: $0.25
New Price: $0.28

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	35607	35392	35177	34962
Estimated Revenue/ day	$9792	$9733	$9674	$9615

Table 11. Demand and Revenue Values for I-90W Exit 12 to 11

Exit 11 to Exit 11A:
Original Demand: 33219
Original Price: $0.45
New Price: $0.50

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
New Demand	33035	32850	32665	32481
Estimated Revenue/ day	$16352	$16261	$16169	$16078

Table 12. Demand and Revenue Values for I-90W Exit 11 to 11a

It can then be assumed that the average daily revenue for this portion of the Massachusetts' Turnpike would be $55,493 for an elasticity value of -0.05, $55,195 for an elasticity value of -0.1, $54,897 for an elasticity value of -0.15, and $54,599 for an elasticity value of -0.2. Table 13 summarizes these findings.

Elasticity Value	ε = -0.05	ε = -0.10	ε = -0.15	ε = -0.20
Estimated Revenue/ day	$55,493	$55,195	$54,897	$54,599

Table 13. Total (Western Portion) Estimated Revenue for I-90W

As before, in order to effectively analyze the positive outcome of increasing the tolls on the Massachusetts' Turnpike by 10%, the original revenue needed to be

calculated. Table 14 provides a summary of the link revenues as well as the total estimated revenue for Exit 11 through Exit 14.

Original Values – I90W			
Westbound	Volume	Toll Price	Revenue
Exit 11 to 11a	33219	$0.45	14949
Exit 11a to 12	35822	$0.25	8956
Exit 12 to 13	41027	$0.30	12308
Exit 13 to 14	48356	$0.30	14507
Total Revenue			$50,719

Table 14. Current Volume and Revenues for I-90W

As shown in the analysis, the proposed increase in tolls would result in an increase of $4,000 per day or approximately $1 million per year for westbound weekday toll transactions.

5.1.2.3 Comparison

The revenues and volumes presented above can be converted into daily averages or yearly averages, without becoming too uncertain. The yearly estimates are more accurate because they were converted by Cambridge Systematics, a company which has access to better and more accurate data. Converting daily averages to yearly averages would be a little more complex because it cannot be assumed that the roadway volume on a weekday is comparable to the roadway volume on a weekend or holiday.

The Westbound and Eastbound average revenues appear to be comparable. The average daily revenue for each direction falls between $54,000 and $56,000 per day. On March 29, 2010, the Massachusetts' Turnpike Authority released, "Western Turnpike

Revenue Bonds" which is a document that reported the annual revenue generated by the Massachusetts' Turnpike for the fiscal year that ended on June 30, 2009. The report stated that for Exit 1 to Exit 15 on the Turnpike about $110,773,000 was generated in 2008-2009. The gap between the revenues estimated in this research and the revenues reported by the Turnpike cannot be directly compared because the revenues reported by the Turnpike account for Exit 1 through Exit 15, whereas this research only considers Exit 11 through Exit 14.

5.1.3 Interstate 93

In order to estimate the anticipated revenues on Interstate 93, a freeway that runs North/South through the Boston Metropolitan area, the adjusted 2007 corridor counts provided by the Central Transportation Planning Staff (CTPS) were used. Since the data from CTPS was based on a 250 day year (including only "work" days), the data needed to be adjusted to include 365 days (a full non-leap year). In order to appropriately adjust the data, the individual corridor count sections were multiplied (i.e. North of route 129, North of Exit 16, etc.) by 250 and then divided that number by 365. More explicitly, the equation below was used:

$$\frac{y_i \times 250}{365}$$

Where y_i is the corridor count on section of road under consideration. Moreover, due to the fact that it is being suggested that collection ramps be installed at each exit north of Route 3 and south of Route 28, the exit ramp demand was calculated using the adjusted CTPS data. More specifically, if traffic was moving Northbound towards Route 28, the calculations started with the corridor count from the Braintree Split and subtracted

the following exit from the previous exit (i.e. The corridor count of exit 15 was subtracted from exit 14), in most cases this yielded a positive number. A positive number indicated an increase in volume; a negative number indicated a decrease in volume. It should be noted that negative numbers were discarded and not used in any revenue summations.

Using the adjusted corridor counts provided by CTPS and approximated elasticities, the demand changes on Interstate 93 were estimated for when a toll is collected. Since Interstate 93 is not currently tolled, an arc elasticity was used rather than a standard elasticity calculation. In using an arc elasticity, the nontrivial issue of dividing by 0 was circumvented. The equations for a standard elasticity (the one used for the Massachusetts' Turnpike analysis) and an arc elasticity are shown below:

$$\varepsilon_{standard} = \frac{\frac{Old\ Demand - New\ Demand}{Old\ Demand}}{\frac{Old\ Price - New\ Price}{Old\ Price}}$$

$$\varepsilon_{arc_{i+1}} = \frac{\frac{(New\ Demand)_{i+1} - (Old\ Demand)_i}{(New\ Demand)_{i+1}}}{\frac{(New\ Price)_{i+1} - (Old\ Price)_i}{(New\ Price)_{i+1}}}$$

As you can see from $\varepsilon_{standard}$ the "Old Price" divides the difference of the "New Price" but in this situation the "Old Price" is zero. In order to best approximate the change in demand an iterative method was needed.

Statement of Method:

Step 1: Let $i = 0$

Step 2: Find $ND_i = f(OP_i, NP_i, OD_i)$

Step 3: $OD_{i+1} = ND_i$

Step 4: $i = i + 1$

Step 5 (if necessary): Go to Step 1

To better illustrate this approach, an epsilon, $\varepsilon = -0.05$ and the values in Table 15 were considered.

i	OP_i Old Price	NP_i New Price	OD_i Old Demand	ND_i New Demand
0	\$0.00	\$0.01	10000	ND_0 $(= OD_1)$
1	\$0.01	\$0.02	OD_1	ND_1

Table 15. Calculation Analysis, Step 1

Solve for ND_0:

$$-0.05 = \frac{\frac{ND_0 - 10000}{ND_0}}{\frac{\$0.01 - \$0.00}{\$0.01}}$$

Therefore:

$$ND_0 \approx 9524$$

It then follows that Table 15 (now Table 16) can be filled in as such:

i	Old Price	New Price	Old Demand	New Demand
0	\$0.00	\$0.01	10000	9524
1	\$0.01	\$0.02	9524	ND_1

Table 16. Calculation Analysis, Step 2

Solve for

$$-0.05 = \frac{\frac{ND_1 - 9524}{ND_1}}{\frac{\$0.02 - \$0.01}{\$0.02}}$$

Like before, it can be seen:

$$ND_1 \approx 9292$$

From there the calculations are completed and compiled into Table 17:

i	Old Price	New Price	Old Demand	New Demand
0	\$0.00	\$0.01	10000	9524
1	\$0.01	\$0.02	9524	9292

Table 17. Calculation Analysis, Final

Prior to the research, it was expected that implementing tolls on Interstate 93 would significantly reduce demand – the analysis supports our original hypothesis. The manner in which the data was originally presented was disjoint. CTPS looked at link volumes for Interstate 93 (in the north and south direction) north and south of Boston. Since it was proposed that users entering or leaving Boston would have to pay a \$1.00 toll, which means that for each Table 18 through 25 a user is expected to pay the toll, regardless if they were already counted in a previous table in which the roadway was going the same direction. Additionally, unlike the analysis done for the Massachusetts' Turnpike, after the first link, the difference in volume (among the following) was only considered, to avoid double counting.

The same method of analysis (as shown above) was applied to the Interstate 93 data for multiple elasticity values and exits. The appendix includes a detailed summary of the iterative analysis done for Interstate 93. Additionally in Tables 21 through 25, the effects of congestion pricing during the AM Peak hour was analyzed. A summary of all the data analysis for I-93 is presented in Tables 18 through 25. It should be noted that all values are considered to be daily estimates.

First, Interstate 93 Northbound, both north and south of Boston were analyzed. Then, Interstate 93 Southbound, both north and south of Boston were analyzed. After that analysis was done, the morning peak volumes were analyzed to measure the effects of congestion pricing during that peak period. The original demand for each link is in parenthesis next to the link location. It was found that there was a huge reduction in

demand as the absolute value of the elasticity increased. In the calculations, to avoid double and triple counting vehicles, it was necessary to use the link volume from the first link and subtracted it from the total volume on the second link – this method was continued until the last link in the chain was reached. Therefore, in the revenue analysis negative demand values were not considered because it meant that more vehicles were exiting the facility than entering them and unfortunately there was no way to extract that information from the data provided.

I93N (South of Boston)				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy @ Braintree Split (67041)	51854	40260	31370	24525
north of Route 28 (4158)	3216	2497	1946	1521
SE Expwy n. of Exit 14 (719)	556	432	336	263
SE Expwy n. of Exit 15 (6603)	5107	3965	3090	2416
SE Expwy n. of Exit 16 (-5233)	-4048	-3143	-2449	-1914
Total	$60733	$47154	$36742	$28725

Table 18. New Demand for I-93N (South of Boston)

I93N (North of Boston)				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Exit 30 (53236)	41176	31970	24911	19475
South of Exit 32 (11428)	8839	6863	5347	4181
South of Exit 33 (979)	757	588	458	358
Stoneham TL (1295)	1002	778	606	474
South of Exit 36 (3134)	2424	1882	1466	1146
South of Rt 129 (-10284)	-7954	-6176	-4812	-3762
Total	$54198	$42081	$32788	$25634

Table 19. New Demand for I-93N (North of Boston)

I93S (South of Boston)				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy n. of Exit 16 (63014)	48739	37842	29486	23052
SE Expwy n. of Exit 15 (15315)	11846	9197	7166	5603
SE Expwy n. of Exit 14 (-2291)	-1772	-1376	-1072	-838
north of Route 28 (-4435)	-3430	-2663	-2075	-1622
SE Expwy @ Braintree Split (-740)	-572	-444	-346	-271
Total	$60585	$47039	$36652	$28655

Table 20. New Demand for I-93S (South of Boston)

I93S (North of Boston)				
Location	**elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Rt 129 (60801)	47027	36513	28450	22242
South of Exit 36 (9312)	7203	5592	4357	3407
Stoneham TL (-3216)	-2487	-1931	-1505	-1176
South of Exit 33 (-1476)	-1142	-886	-691	-540
South of Exit 32 (-3366)	-2603	-2021	-1575	-1231
South of Exit 30 (-9353)	-7234	-5617	-4377	-3422
Total	$54230	$42105	$32807	$25649

Table 21. New Demand for I-93S (North of Boston)

I93S (North of Boston) – Congestion				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Rt 129 (15305)	11599	8825	6738	5161
South of Exit 36 (-1747)	-1324	-1007	-769	-589
Stoneham TL (-935)	-709	-539	-412	-315
South of Exit 33 (226)	171	130	99	76
South of Exit 32 (-630)	-477	-363	-277	-212
South of Exit 30	-1171	-891	-680	-521

(-1545)				
I93S (North of Boston) – Congestion				
Location	**Revenues (in dollars)**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Rt 129	17399	13237	10106	7742
South of Exit 36	-1986	-1511	-1154	-884
Stoneham TL	-1063	-809	-617	-473
South of Exit 33	257	195	149	114
South of Exit 32	-716	-545	-416	-319
South of Exit 30	-1756	-1336	-1020	-782
Total	17656	13432	10256	7856

Table 22. New Demand and Revenue during the AM Peak for I-93S (North of Boston)

I93N (North of Boston) -- Congestion				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Rt 129 (7171)	-1988	-1512	-1155	-885
South of Exit 36 (2507)	1168	889	678	520
Stoneham TL (247)	1015	772	589	452
South of Exit 33 (1339)	187	142	109	83
South of Exit 32 (1541)	1900	1445	1104	845
South of Exit 30 (-2623)	5435	4135	3157	2418
I93N (North of Boston) -- Congestion				
Location	**Revenues (in dollars)**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
South of Rt 129	-2982	-2269	-1732	-1327
South of Exit 36	1752	1333	1018	780
Stoneham TL	1522	1158	884	677
South of Exit 33	281	214	163	125
South of Exit 32	2850	2168	1655	1268
South of Exit 30	8152	6202	4735	3627
Total	14557	11075	8456	6477

Table 23. New Demand and Revenue during the AM Peak for I-93N (North of Boston)

I93S (South of Boston) -- Congestion				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy @ Braintree Split (9589)	7267	5529	4221	3234

north of Route 28 (1969)	1492	1135	867	664
SE Expwy n. of Exit 14 (-1120)	-849	-646	-493	-378
SE Expwy n. of Exit 15 (2853)	2162	1645	1256	962
SE Expwy n. of Exit 16 (-3103)	-2352	-1789	-1366	-1046
I93S (South of Boston) -- Congestion				
Location	**Revenues (in dollars)**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy @ Braintree Split	10901	8293	6332	4851
north of Route 28	2238	1703	1300	996
SE Expwy n. of Exit 14	-1273	-969	-740	-567
SE Expwy n. of Exit 15	3243	2467	1884	1443
SE Expwy n. of Exit 16	-3528	-2684	-2049	-1570
Total	16383	12464	9516	7290

Table 24. New Demand and Revenue during the AM Peak for I-93S (South of Boston)

I93N (South of Boston) -- Congestion				
Location	**Elasticity value**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy @ Braintree Split (13483)	10219	7774	5936	4547
north of Route 28 (634)	480	366	279	214
SE Expwy n. of Exit 14 (589)	446	340	259	199
SE Expwy n. of Exit 15 (1373)	1041	792	604	463
SE Expwy n. of Exit 16 (-17)	-13	-10	-7	-6
I93N (South of Boston) -- Congestion				
Location	**Revenues (in dollars)**			
	-0.05	**-0.1**	**-0.15**	**-0.2**
SE Expwy @ Braintree Split	15328	548	419	321
north of Route 28	721	548	419	321
SE Expwy n. of Exit 14	670	509	389	298
SE Expwy n. of Exit 15	1561	1187	907	695
SE Expwy n. of Exit 16	-19	-15	-11	-9
Total	18279	2794	2133	1634

Table 25. New Demand and Revenue during the AM Peak for I-93N (South of Boston)

5.1.4 Turnpike Application

In order to test the veracity of the method proposed above, the same iterative method was applied to an exit on the Massachusetts' Turnpike. For the analysis, Exit 11

to 11a on the Massachusetts' Turnpike (in the eastbound direction) was used. All parameters and base numbers used previously were once again used.

As depicted in Table 26, below, the new and original methods were compared. The new method yielded a higher value for new demand for all values of ε; however, the percent difference between the two methods at its highest is only 1.5% — relatively small when other factors are taken into consideration. This comparison supports the notion that the iterative calculations using the arc elasticity and the corresponding results may be considered to be reasonable.

It should be noted that one of the main differences between the analysis for this exit on the Massachusetts' Turnpike and the analysis done for Interstate 93 is that the first "Old Price" in the iterative method was \$0.45, rather than \$0.00 (the value that had been used for Interstate 93). If the "Old Price" had been set to \$0.00, as it was in previous calculations, the demand decrease would have been significant. Furthermore, since the original and new methods yield almost the same demand values, using \$0.45 as the original "Old Price" it can be concluded that the calculations in both cases for Interstate 90 and 93 were done in a reasonable manner and that the higher decrease in demand estimated for Interstate 93 may be reasonable.

Exit 11 to Exit 11a:

Original Demand: 33219
Original Price: \$0.45
New Price: \$0.50

	Elasticity Value			
	$\varepsilon = -0.05$	$\varepsilon = -0.10$	$\varepsilon = -0.15$	$\varepsilon = -0.20$
Original Method	33035	32850	32665	32481
New Method	33079	33046	33012	32979

Difference	44	196	347	498
Percent Diff.	0.13%	0.59%	1.07%	1.53%

Table 26. Side by Side Comparison of the Two Methods

5.2 Contributions of the Research

The results of the research will better serve state DOT officials in understanding how tolls can be used as a tool in transportation finance. Toll roads have been used as a source of transportation finance for more than 50 years, but still there are states in the continental U.S. that do not have any tolled roadways. Literature shows that in locations where tolls are currently used, users are looking for better technology and faster collection. In locations where toll roads are non-existent, high speed toll roads and all electronic toll payment systems are being considered as an alternative transportation finance approach.

It should be noted that installing toll roads on roadways that are not currently tolled can have mixed effects. For example, in some instances the roadway users will accept that they need to pay the toll and demand will not change. On the other hand, many roadways users may switch to other roadways where tolls are not charged and demand on these other roads may decrease significantly. Furthermore, as roadway users switch to an alternate route, the roadways in which they choose to relocate are usually not designed to handle increased demand. What may happen is that users would initially switch routes, but the increase in travel time as well as inconvenience would direct them back to the newly tolled highway. As such, demand on the newly tolled highway may not significantly decrease as time went on. It goes without saying that revenue will increase because there was no generated revenue in the first place.

More specifically, on Interstate 93, it was believed that users will use alternative routes to reach their destination. As such, their new route choice could be examined to see if: a) they are in fact switching routes; b) choosing to commute at off-peak times (in the case where congestion pricing is implemented); and finally c) carpooling with co-workers and acquaintances to reduce traveling expenses. Gathering political support and public acceptance to implement tolls on a roadway such as Interstate 93 is expected to be a challenge for State DOT officials because the notion of installing tolls on roads that are not currently tolled may raise a lot of questions.

In raising toll prices on Interstate 90, revenue would also be expected to increase. As shown in the literature, the roads that typically demonstrate a severe decrease in demand when tolls are raised are roads that were not previously tolled. Although demand may fluctuate on Interstate 90, revenue on the roadway is expected to increase which is supported with CTPS data for the MassPike. Moreover, many users who choose to utilize a different facility in response to the toll increase on the MassPike may revert back to the MassPike due to convenience and faster travel times.

CHAPTER VI

6. CONCLUSIONS AND RECOMMENDATIONS

The current economic climate serves as an open forum to consider alternative financing approaches for surface transportation. As discussed in the literature, tolling is a major finance approach available to State DOTs to support surface transportation investments. Present trends indicate that toll roads are sustainable financing approaches. Although not referenced in this paper, a vehicle-miles traveled fee or a VMT fee has been suggested as a viable substitute to the gas tax. The current gas tax has been recognized by many researchers and economists as a financing method that is losing its purchasing power -- as the number of hybrid cars increases, the gas tax becomes more ineffective. Another alternative used to support surface transportation investments has been the sales tax (in some states). Using the sales tax to fund surface transportation investments is a complicated issue because people want their taxes to be used in investments that relate to them – not everyone drives. Additionally, other sources imply that a financing approach including many different innovative financing schemes should be considered.

Not only should current toll levels be increased, to remain on par with inflation, but innovative pricing strategies should be employed to reduce congestion during peak hours as well as create a greener transportation system. In employing effective and innovative pricing strategies, congestion on roadways such as Interstate 93, previously discussed, would create a more enjoyable travel experience for the user, generate revenue for the state, and reduce idle time for users (i.e. reducing CO2 emissions).

In employing innovative technologies, toll collection strategies needed to be considered. In this day and age, the literature suggests and later proves that all-electronic

tolling and "cashless" tolling are strategies being considered by many toll road agencies. Roadway users have two goals: they want to get to their destination without incident and they want to do that quickly -- all-electronic tolling better allows users to achieve their goals.

Massachusetts, like most states, is in the middle of an economic decline – especially when it comes to financing transportation while at the same time the State DOT is looking for ways to generate additional revenue for transportation investments. Increasing the tolls on the Massachusetts' Turnpike and implementing tolls on Interstate 93 are viable alternatives to pave way for improvements and new development to transportation infrastructure in the commonwealth. In a place where snow falls can accumulate to more than 40 inches in one month, there needs to money to offset the damaging effects of the weather – implementing the alternatives proposed above can help remedy these hardships. The analysis done on Interstate 93 will allow state department of transportation officials a foundation in which they can use to seek clarity when deciding to implement tolls on a roadway that is not currently tolled. Using an iterative arc elasticity, rather than the standard arc elasticity is believed to yield a more accurate approximation when it comes to forecasting new demand on roadways that were not previously tolled. Furthermore, state officials should know that using the point elasticity method (such as the one used for the Massachusetts' Turnpike) is not a viable option because it leaves the researcher to divide by zero – undefined in mathematics. Furthermore, reflecting on the project demand decrease on Interstate 93, it is expected that a route shift will occur; however, due to the limitations of the data, the alternative routes chosen could not be determined.

Since, the Massachusetts' Turnpike already has tolls and transportation demand is relatively inelastic, increasing the tolls on this roadway, as shown above, would minimally reduce demand while at the same time increase revenue. Most users expect that as inflation increases the cost of living increases as well – they see it everywhere. With the rising cost of oil, produce, taxes, and rent, it is only natural to expect a rise in transportation costs. Looking at the analysis of the Boston Extension, just by increasing the average toll price by 10%, revenues are projected to increase by at least $6 million for the year AND there will be a reduction in congestion on the heavily traveled Boston Extension. Furthermore, looking at the western/central portion of the Turnpike, revenues are projected to increase as well.

Unlike the Boston Extension, current revenue data for the western portion of Turnpike was not made available so it had to be estimated in a manner similar to that of the analysis. For both the eastbound and westbound directions of the Massachusetts' Turnpike, increasing tolls by 10% could yield at least an increase of approximately $8,000 per weekday in revenues or approximately $2,000,000 annually for weekday traffic. If Origin-Destination (OD) tables were available for the entire Western portion of the Turnpike, a more accurate analysis could have been performed. With OD tables, the exact toll price for users would be known and as such be able to better calculate projected revenues.

APPENDIX
A. 93 DATA ANALYSIS

		I93S (south of boston)																			
		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**
0.0	0.0	6301	6301	6301	6301	1531	1531	1531	1531	-	-	-	-	-	-	-	-		-		-
0	1	4	4	4	4	5	5	5	5	2291	2291	2291	2291	4435	4435	4435	4435	-740	740	-740	740
0.0	**0.0**	6001	5728	5479	5251	1458	1392	1331	1276	-	-	-	-	-	-	-	-		-		-
1	**2**	3	5	5	2	6	3	7	3	2182	2083	1992	1909	4224	4032	3857	3696	-705	673	-643	617
0.0	0.0	5855	5455	5097	4773	1423	1326	1238	1160	-	-	-	-	-	-	-	-		-		-
2	3	0	8	2	8	0	0	8	2	2129	1984	1853	1736	4121	3840	3587	3360	-688	641	-599	561
0.0	0.0	5759	5279	4854	4475	1399	1283	1179	1087	-	-	-	-	-	-	-	-		-		-
3	4	0	8	5	4	7	2	8	7	2094	1920	1765	1627	4053	3716	3417	3150	-676	620	-570	526
0.0	**0.0**	5687	5151	4679	4262	1382	1251	1137	1035	-	-	-	-	-	-	-	-		-		-
4	**5**	9	0	0	3	4	9	2	9	2068	1873	1701	1550	4003	3625	3293	3000	-668	605	-549	501
0.0	0.0	5631	5050	4542	4098	1368	1227	1104		-	-	-	-	-	-	-	-		-		-
5	6	6	0	7	4	7	4	1	9961	2047	1836	1652	1490	3964	3554	3197	2884	-661	593	-533	481
0.0	0.0	5585	4967	4431	3966	1357	1207	1077		-	-	-	-	-	-	-	-		-		-
6	7	0	2	9	2	4	2	1	9639	2031	1806	1611	1442	3931	3496	3119	2791	-656	583	-520	466
0.0	**0.0**	5545	4897	4338	3856	1347	1190	1054		-	-	-	-	-	-	-	-		-		-
7	**8**	4	2	9	0	8	2	5	9372	2016	1780	1578	1402	3903	3447	3054	2714	-651	575	-510	453
0.0	0.0	5511	4836	4259	3761	1339	1175	1035		-	-	-	-	-	-	-	-		-		-
8	9	0	8	1	9	4	5	1	9143	2004	1759	1548	1368	3879	3404	2998	2648	-647	568	-500	442
0.0	0.1	5480	4783	4189	3680	1332	1162	1018		-	-	-	-	-	-	-	-		-		-
9	0	5	6	3	2	0	6	2	8944	1993	1739	1523	1338	3857	3367	2948	2590	-644	562	-492	432
0.1	**0.1**	5453	4736	4127	3608	1325	1151	1003		-	-	-	-	-	-	-	-		-		-
0	**1**	3	3	4	0	4	1	1	8769	1983	1722	1501	1312	3838	3333	2905	2539	-640	556	-485	424
0.1	0.1	5428	4693	4071	3543	1319	1140			-	-	-	-	-	-	-	-		-		-
1	2	6	6	8	6	4	7	9896	8612	1974	1706	1480	1288	3821	3303	2866	2494	-638	551	-478	416
0.1	0.1	5406	4654	4021	3485	1313	1131			-	-	-	-	-	-	-	-		-		-
2	3	1	8	6	5	9	3	9774	8471	1965	1692	1462	1267	3805	3276	2830	2453	-635	547	-472	409
0.1	**0.1**	5385	4619	3975	3432	1308	1122			-	-	-	-	-	-	-	-		-		-
3	**4**	3	3	7	7	9	7	9663	8343	1958	1679	1445	1248	3790	3251	2798	2416	-632	542	-467	403
0.1	0.1	5366	4586	3933	3384	1304	1114			-	-	-	-	-	-	-	-		-		-
4	5	2	5	5	3	2	7	9560	8225	1951	1668	1430	1230	3777	3228	2768	2382	-630	539	-462	397
0.1	0.1	5348	4556	3894	3339	1299	1107			-	-	-	-	-	-	-	-		-		-
5	6	3	1	6	8	9	3	9465	8117	1944	1656	1416	1214	3764	3207	2741	2351	-628	535	-457	392
0.1	**0.1**	5331	4527	3858	3298	1295	1100			-	-	-	-	-	-	-	-		-		-
6	**7**	7	8	4	6	8	5	9378	8017	1938	1646	1403	1199	3753	3187	2716	2322	-626	532	-453	387
0.1	0.1	5316	4501	3824	3260	1292	1094			-	-	-	-	-	-	-	-		-		-
7	8	1	4	7	2	0	0	9296	7924	1933	1637	1391	1185	3741	3168	2692	2295	-624	529	-449	383
0.1	0.1	5301	4476	3793	3224	1288	1088			-	-	-	-	-	-	-	-		-		-
8	9	3	5	1	4	4	0	9219	7837	1927	1628	1379	1172	3731	3151	2670	2269	-623	526	-445	379
0.1	**0.2**	5287	4453	3763	3190	1285	1082			-	-	-	-	-	-	-	-		-		-
9	**0**	4	1	4	8	1	3	9147	7755	1922	1619	1368	1160	3721	3134	2649	2246	-621	523	-442	375
0.2	0.2	5274	4430	3735	3159	1281	1076	9078	7678	-	-	-	-	-	-	-	-	-619	-	-439	-

	1	2	9	3	2	9	9			1918	1611	1358	1149	3712	3119	2629	2223		520		371
0.2	0.2	5261	4409	3708	3129	1278	1071			-	-	-	-	-	-	-	-		-		-
1	2	7	9	9	4	8	8	9014	7606	1913	1603	1348	1138	3703	3104	2610	2203	-618	518	-436	367
0.2	**0.2**	5249	4389	3683	3101	1275	1066			-	-	-	-	-	-	-	-		-		-
2	**3**	8	9	7	2	9	9	8953	7537	1909	1596	1339	1128	3695	3090	2593	2183	-617	516	-433	364
0.2	0.2	5238	4370	3659	3074	1273	1062			-	-	-	-	-	-	-	-		-		-
3	4	4	9	9	5	1	3	8895	7472	1905	1589	1331	1118	3687	3076	2576	2164	-615	513	-430	361
0.2	0.2	5227	4352	3637	3049	1270	1057			-	-	-	-	-	-	-	-		-		-
4	5	5	8	1	1	5	9	8840	7410	1901	1583	1322	1109	3679	3064	2560	2146	-614	511	-427	358
0.2	**0.2**	5217	4335	3615	3024	1268	1053			-	-	-	-	-	-	-	-		-		-
5	**6**	1	5	4	9	0	7	8787	7352	1897	1576	1314	1100	3672	3051	2545	2129	-613	509	-425	355
0.2	0.2	5207	4318	3594	3001	1265	1049			-	-	-	-	-	-	-	-		-		-
6	7	0	9	7	8	5	7	8737	7296	1893	1570	1307	1091	3665	3040	2530	2113	-611	507	-422	353
0.2	0.2	5197	4302	3574	2979	1263	1045			-	-	-	-	-	-	-	-		-		-
7	8	4	9	8	7	2	8	8688	7242	1890	1564	1300	1083	3658	3028	2516	2097	-610	505	-420	350
0.2	**0.2**	5188	4287	3555	2958	1260	1042			-	-	-	-	-	-	-	-		-		-
8	**9**	1	6	8	6	9	1	8642	7191	1886	1559	1293	1076	3651	3018	2503	2082	-609	504	-418	347
0.2		5179	4272	3537	2938	1258	1038			-	-	-	-	-	-	-	-		-		-
9	0.3	2	9	5	3	8	5	8598	7141	1883	1553	1286	1068	3645	3007	2490	2068	-608	502	-415	345
0.3	0.3	5170	4258	3519	2918	1256	1035			-	-	-	-	-	-	-	-		-		-
0	1	6	7	9	8	7	0	8555	7094	1880	1548	1280	1061	3639	2997	2477	2054	-607	500	-413	343
0.3	**0.3**	5162	4245	3502	2900	1254	1031			-	-	-	-	-	-	-	-		-		-
1	**2**	3	0	9	1	6	7	8514	7049	1877	1543	1274	1054	3633	2988	2465	2041	-606	499	-411	341
0.3	0.3	5154	4231	3486	2882	1252	1028			-	-	-	-	-	-	-	-		-		-
2	3	2	8	6	1	7	5	8474	7005	1874	1539	1268	1048	3628	2978	2454	2028	-605	497	-409	338
0.3	0.3	5146	4219	3470	2864	1250	1025			-	-	-	-	-	-	-	-		-		-
3	4	4	0	8	8	8	4	8436	6963	1871	1534	1262	1042	3622	2969	2443	2016	-604	495	-408	336
0.3	**0.3**	5138	4206	3455	2848	1249	1022			-	-	-	-	-	-	-	-		-		-
4	**5**	9	6	6	0	0	4	8398	6922	1868	1529	1256	1035	3617	2961	2432	2004	-603	494	-406	334
0.3	0.3	5131	4194	3440	2831	1247	1019			-	-	-	-	-	-	-	-		-		-
5	6	5	6	8	8	2	5	8363	6883	1866	1525	1251	1030	3612	2952	2422	1993	-603	493	-404	333
0.3	0.3	5124	4183	3426	2816	1245	1016			-	-	-	-	-	-	-	-		-		-
6	7	4	0	6	2	4	6	8328	6844	1863	1521	1246	1024	3607	2944	2412	1982	-602	491	-402	331
0.3	**0.3**	5117	4171	3412	2801	1243	1013			-	-	-	-	-	-	-	-		-		-
7	**8**	5	7	7	0	8	9	8294	6808	1861	1517	1241	1018	3602	2936	2402	1971	-601	490	-401	329
0.3	0.3	5110	4160	3399	2786	1242	1011			-	-	-	-	-	-	-	-		-		-
8	9	8	8	3	4	1	2	8262	6772	1858	1513	1236	1013	3597	2928	2392	1961	-600	489	-399	327
0.3	0.4	5104	4150	3386	2772	1240	1008			-	-	-	-	-	-	-	-		-		-
9	0	2	1	3	2	5	7	8230	6737	1856	1509	1231	1008	3592	2921	2383	1951	-599	487	-398	326
0.4	**0.4**	5097	4139	3373	2758	1239	1006			-	-	-	-	-	-	-	-		-		-
0	**1**	9	8	6	4	0	1	8199	6704	1853	1505	1227	1003	3588	2914	2374	1941	-599	486	-396	324
0.4	0.4	5091	4129	3361	2745	1237	1003			-	-	-	-	-	-	-	-		-		-
1	2	7	7	3	0	5	7	8169	6671	1851	1501	1222	-998	3584	2907	2366	1932	-598	485	-395	322
0.4	0.4	5085	4119	3349	2732	1236	1001			-	-	-	-	-	-	-	-		-		-
2	3	6	9	4	0	0	3	8140	6640	1849	1498	1218	-993	3579	2900	2357	1923	-597	484	-393	321
0.4	**0.4**	5079	4110	3337	2719	1234				-	-	-	-	-	-	-	-		-		-
3	**4**	7	3	7	3	6	9990	8112	6609	1847	1494	1213	-989	3575	2893	2349	1914	-597	483	-392	319
0.4	0.4	5073	4101	3326	2707	1233				-	-	-	-	-	-	-	-		-		-
4	5	9	0	4	0	2	9967	8084	6579	1845	1491	1209	-984	3571	2886	2341	1905	-596	482	-391	318
0.4	0.4	5068	4091	3315	2695	1231	9945	8058	6550	-	-	-	-980	-	-	-	-	-595	-	-389	-

5	6	3	9	3	0	8				1843	1488	1205		3567	2880	2333	1897		481		316
0.4	**0.4**	5062	4083	3304	2683	1230				-	-	-		-	-	-	-		-		-
6	**7**	8	1	6	4	5	9924	8031	6522	1841	1484	1201	-976	3563	2874	2326	1889	-595	479	-388	315
0.4	0.4	5057	4074	3294	2672	1229				-	-	-		-	-	-	-		-		-
7	8	4	4	0	0	2	9902	8006	6494	1839	1481	1198	-971	3559	2868	2318	1881	-594	478	-387	314
0.4	0.4	5052	4065	3283	2660	1227				-	-	-		-	-	-	-		-		-
8	9	2	9	8	9	9	9882	7981	6467	1837	1478	1194	-967	3556	2862	2311	1873	-593	477	-386	312
0.4	**0.5**	5047	4057	3273	2650	1226				-	-	-		-	-	-	-		-		-
9	**0**	0	6	8	1	6	9862	7957	6441	1835	1475	1190	-963	3552	2856	2304	1865	-593	477	-384	311
	0.5	5042	4049	3264	2639	1225				-	-	-		-	-	-	-		-		-
0.5	1	0	5	0	5	4	9842	7933	6415	1833	1472	1187	-960	3549	2850	2297	1858	-592	476	-383	310
0.5	0.5	5037	4041	3254	2629	1224				-	-	-		-	-	-	-		-		-
1	2	0	6	4	2	2	9823	7910	6390	1831	1469	1183	-956	3545	2845	2290	1850	-592	475	-382	309
0.5	**0.5**	5032	4033	3245	2619	1223				-	-	-		-	-	-	-		-		-
2	**3**	2	9	0	2	0	9804	7887	6366	1830	1467	1180	-952	3542	2839	2284	1843	-591	474	-381	308
0.5	0.5	5027	4026	3235	2609	1221				-	-	-		-	-	-	-		-		-
3	4	4	3	9	3	9	9785	7865	6342	1828	1464	1176	-949	3538	2834	2277	1836	-590	473	-380	306
0.5	0.5	5022	4018	3226	2599	1220				-	-	-		-	-	-	-		-		-
4	5	8	8	9	7	7	9767	7843	6318	1826	1461	1173	-945	3535	2828	2271	1830	-590	472	-379	305
0.5	**0.5**	5018	4011	3218	2590	1219				-	-	-		-	-	-	-		-		-
5	**6**	2	5	1	3	6	9750	7821	6295	1824	1458	1170	-942	3532	2823	2265	1823	-589	471	-378	304
0.5	0.5	5013	4004	3209	2581	1218				-	-	-		-	-	-	-		-		-
6	7	7	4	5	0	5	9732	7801	6273	1823	1456	1167	-938	3529	2818	2259	1817	-589	470	-377	303
0.5	0.5	5009	3997	3201	2572	1217				-	-	-		-	-	-	-		-		-
7	8	4	4	1	0	5	9715	7780	6251	1821	1453	1164	-935	3526	2813	2253	1810	-588	469	-376	302
0.5	**0.5**	5005	3990	3192	2563	1216				-	-	-		-	-	-	-		-		-
8	**9**	0	5	9	2	4	9698	7760	6230	1820	1451	1161	-932	3523	2809	2247	1804	-588	469	-375	301
0.5		5000	3983	3184	2554	1215				-	-	-		-	-	-	-		-		-
9	0.6	8	7	8	5	4	9682	7740	6209	1818	1448	1158	-929	3520	2804	2241	1798	-587	468	-374	300
0.6	0.6	4996	3977	3176	2546	1214				-	-	-		-	-	-	-		-		-
0	1	6	1	8	0	4	9666	7721	6188	1817	1446	1155	-926	3517	2799	2236	1792	-587	467	-373	299
0.6	**0.6**	4992	3970	3169	2537	1213				-	-	-		-	-	-	-		-		-
1	**2**	5	6	0	7	4	9650	7702	6168	1815	1444	1152	-923	3514	2795	2230	1786	-586	466	-372	298
0.6	0.6	4988	3964	3161	2529	1212				-	-	-		-	-	-	-		-		-
2	3	5	2	4	6	4	9635	7683	6148	1814	1441	1149	-920	3511	2790	2225	1780	-586	466	-371	297
0.6	0.6	4984	3957	3153	2521	1211				-	-	-		-	-	-	-		-		-
3	4	6	9	9	5	5	9619	7665	6128	1812	1439	1147	-917	3508	2786	2220	1775	-585	465	-370	296
0.6	**0.6**	4980	3951	3146	2513	1210				-	-	-		-	-	-	-		-		-
4	**5**	7	7	5	7	5	9604	7647	6109	1811	1437	1144	-914	3505	2781	2215	1769	-585	464	-370	295
0.6	0.6	4976	3945	3139	2506	1209				-	-	-		-	-	-	-		-		-
5	6	8	7	3	0	6	9590	7630	6091	1809	1435	1141	-911	3503	2777	2209	1764	-584	463	-369	294
0.6	0.6	4973	3939	3132	2498	1208				-	-	-		-	-	-	-		-		-
6	7	1	7	1	4	7	9575	7612	6072	1808	1432	1139	-908	3500	2773	2204	1758	-584	463	-368	293
0.6	**0.6**	4969	3933	3125	2491	1207				-	-	-		-	-	-	-		-		-
7	**8**	4	8	1	0	8	9561	7595	6054	1807	1430	1136	-906	3498	2769	2200	1753	-584	462	-367	293
0.6	0.6	4965	3928	3118	2483	1206				-	-	-		-	-	-	-		-		-
8	9	7	0	3	7	9	9547	7579	6036	1805	1428	1134	-903	3495	2765	2195	1748	-583	461	-366	292
0.6	0.7	4962	3922	3111	2476	1206				-	-	-		-	-	-	-		-		-
9	0	1	4	5	5	0	9533	7562	6019	1804	1426	1131	-900	3492	2761	2190	1743	-583	461	-365	291
0.7	**0.7**	4958	3916	3104	2469	1205	9519	7546	6002	-	-	-	-898	-	-	-	-	-582	-	-365	-

0	**1**	6	8	8	4	1				1803	1424	1129		3490	2757	2185	1738		460		290
0.7	0.7	4955	3911	3098	2462	1204				-	-	-		-	-	-	-		-		-
1	2	1	3	3	5	3	9506	7530	5985	1802	1422	1126	-895	3487	2753	2181	1733	-582	459	-364	289
0.7	0.7	4951	3905	3091	2455	1203				-	-	-		-	-	-	-		-		-
2	3	7	8	9	7	5	9493	7514	5968	1800	1420	1124	-893	3485	2749	2176	1728	-581	459	-363	288
0.7	**0.7**	4948	3900	3085	2449	1202				-	-	-		-	-	-	-		-		-
3	**4**	3	5	5	0	6	9480	7499	5952	1799	1418	1122	-890	3483	2745	2172	1724	-581	458	-362	288
0.7	0.7	4944	3895	3079	2442	1201				-	-	-		-	-	-	-		-		-
4	5	9	2	3	4	8	9467	7484	5936	1798	1416	1120	-888	3480	2742	2167	1719	-581	457	-362	287
0.7	0.7	4941	3890	3073	2435	1201				-	-	-		-	-	-	-		-		-
5	6	6	0	1	9	0	9454	7469	5920	1797	1414	1117	-886	3478	2738	2163	1714	-580	457	-361	286
0.7	**0.7**	4938	3884	3067	2429	1200				-	-	-		-	-	-	-		-		-
6	**7**	4	9	1	5	2	9442	7454	5905	1795	1412	1115	-883	3476	2734	2159	1710	-580	456	-360	285
0.7	0.7	4935	3879	3061	2423	1199				-	-	-		-	-	-	-		-		-
7	8	2	9	1	2	5	9430	7440	5889	1794	1411	1113	-881	3473	2731	2154	1705	-580	456	-359	285
0.7	0.7	4932	3874	3055	2417	1198				-	-	-		-	-	-	-		-		-
8	9	0	9	2	0	7	9418	7425	5874	1793	1409	1111	-879	3471	2727	2150	1701	-579	455	-359	284
0.7	**0.8**	4928	3870	3049	2410	1197				-	-	-		-	-	-	-		-		-
9	**0**	9	0	4	9	9	9406	7411	5859	1792	1407	1109	-877	3469	2724	2146	1697	-579	454	-358	283
	0.8	4925	3865	3043	2404	1197				-	-	-		-	-	-	-		-		-
0.8	1	8	2	7	9	2	9394	7398	5845	1791	1405	1107	-874	3467	2720	2142	1693	-578	454	-357	282
0.8	0.8	4922	3860	3038	2398	1196				-	-	-		-	-	-	-		-		-
1	2	8	4	1	9	4	9382	7384	5830	1790	1404	1105	-872	3465	2717	2138	1688	-578	453	-357	282
0.8	**0.8**	4919	3855	3032	2393	1195				-	-	-		-	-	-	-		-		-
2	**3**	8	7	6	1	7	9371	7370	5816	1789	1402	1103	-870	3463	2714	2134	1684	-578	453	-356	281
0.8	0.8	4916	3851	3027	2387	1195				-	-	-		-	-	-	-		-		-
3	4	8	1	1	4	0	9360	7357	5802	1788	1400	1101	-868	3461	2710	2131	1680	-577	452	-355	280
0.8	0.8	4913	3846	3021	2381	1194				-	-	-		-	-	-	-		-		-
4	5	9	5	7	7	3	9349	7344	5788	1787	1398	1099	-866	3458	2707	2127	1676	-577	452	-355	280
0.8	**0.8**	4911	3842	3016	2376	1193				-	-	-		-	-	-	-		-		-
5	**6**	0	0	4	1	6	9338	7331	5775	1785	1397	1097	-864	3456	2704	2123	1672	-577	451	-354	279
0.8	0.8	4908	3837	3011	2370	1192				-	-	-		-	-	-	-		-		-
6	7	1	5	1	6	9	9327	7318	5761	1784	1395	1095	-862	3454	2701	2119	1668	-576	451	-354	278
0.8	0.8	4905	3833	3005	2365	1192				-	-	-		-	-	-	-		-		-
7	8	3	1	9	1	2	9316	7306	5748	1783	1394	1093	-860	3452	2698	2116	1665	-576	450	-353	278
0.8	**0.8**	4902	3828	3000	2359	1191				-	-	-		-	-	-	-		-		-
8	**9**	5	8	8	8	5	9305	7293	5735	1782	1392	1091	-858	3450	2695	2112	1661	-576	450	-352	277
0.8		4899	3824	2995	2354	1190				-	-	-		-	-	-	-		-		-
9	0.9	8	5	8	5	9	9295	7281	5722	1781	1390	1089	-856	3449	2692	2108	1657	-575	449	-352	276
0.9	0.9	4897	3820	2990	2349	1190				-	-	-		-	-	-	-		-		-
0	1	1	2	8	3	2	9285	7269	5710	1780	1389	1087	-854	3447	2689	2105	1653	-575	449	-351	276
0.9	**0.9**	4894	3816	2985	2344	1189				-	-	-		-	-	-	-		-		-
1	**2**	4	0	9	1	5	9275	7257	5697	1779	1387	1086	-852	3445	2686	2101	1650	-575	448	-351	275
0.9	0.9	4891	3811	2981	2339	1188				-	-	-		-	-	-	-		-		-
2	3	7	9	0	0	9	9264	7245	5685	1778	1386	1084	-850	3443	2683	2098	1646	-574	448	-350	275
0.9	0.9	4889	3807	2976	2334	1188				-	-	-		-	-	-	-		-		-
3	4	1	8	2	0	3	9255	7233	5673	1778	1384	1082	-849	3441	2680	2095	1643	-574	447	-350	274
0.9	**0.9**	4886	3803	2971	2329	1187				-	-	-		-	-	-	-		-		-
4	**5**	5	7	5	1	6	9245	7222	5661	1777	1383	1080	-847	3439	2677	2091	1639	-574	447	-349	274
0.9	0.9	4883	3799	2966	2324	1187	9235	7211	5649	-	-	-	-845	-	-	-	-	-574	-	-348	-

5	6	9	7	8	2	0				1776	1381	1079		3437	2674	2088	1636		446		273
0.9	0.9	4881	3795	2962	2319	1186				-	-	-		-	-	-	-		-		-
6	7	4	8	2	3	4	9225	7199	5637	1775	1380	1077	-843	3436	2672	2085	1632	-573	446	-348	272
0.9	**0.9**	4878	3791	2957	2314	1185				-	-	-		-	-	-	-		-		-
7	**8**	9	9	6	6	8	9216	7188	5625	1774	1379	1075	-842	3434	2669	2082	1629	-573	445	-347	272
0.9	0.9	4876	3788	2953	2309	1185				-	-	-		-	-	-	-		-		-
8	9	4	0	1	9	2	9206	7177	5614	1773	1377	1074	-840	3432	2666	2078	1626	-573	445	-347	271
0.9	**1.0**	**4873**	**3784**	**2948**	**2305**	**1184**				-	-	-		-	-	-	-		-		-
9	**0**	**9**	**2**	**6**	**2**	**6**	**9197**	**7166**	**5603**	**1772**	**1376**	**1072**	**-838**	**3430**	**2663**	**2075**	**1622**	**-572**	**444**	**-346**	**271**

I93N (south of Boston)

		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**
0.00	0.01	67041	67041	67041	67041	4158	4158	4158	4158	719	719	719	719	6603	6603	6603	6603	-5233	-5233	-5233	-5233
0.01	**0.02**	63849	60946	58297	55868	3960	3780	3616	3465	685	654	625	599	6289	6003	5742	5503	-4984	-4757	-4550	-4361
0.02	0.03	62291	58044	54229	50789	3863	3600	3363	3150	668	623	582	545	6135	5717	5341	5002	-4862	-4531	-4233	-3964
0.03	0.04	61270	56172	51647	47614	3800	3484	3203	2953	657	602	554	511	6035	5532	5087	4690	-4783	-4385	-4031	-3717
0.04	**0.05**	60514	54802	49780	45347	3753	3399	3087	2813	649	588	534	486	5960	5398	4903	4466	-4724	-4278	-3886	-3540
0.05	0.06	59915	53727	48330	43603	3716	3332	2998	2704	643	576	518	468	5901	5292	4760	4295	-4677	-4194	-3773	-3403
0.06	0.07	59419	52846	47152	42196	3685	3278	2924	2617	637	567	506	453	5852	5205	4644	4156	-4638	-4125	-3680	-3294
0.07	**0.08**	58998	52102	46162	41024	3659	3231	2863	2544	633	559	495	440	5811	5132	4547	4041	-4605	-4067	-3603	-3202
0.08	0.09	58632	51459	45313	40024	3636	3192	2810	2482	629	552	486	429	5775	5068	4463	3942	-4577	-4017	-3537	-3124
0.09	0.10	58308	50893	44570	39154	3616	3156	2764	2428	625	546	478	420	5743	5013	4390	3856	-4551	-3973	-3479	-3056
0.10	**0.11**	58018	50389	43911	38386	3598	3125	2723	2381	622	540	471	412	5714	4963	4325	3781	-4529	-3933	-3428	-2996
0.11	0.12	57755	49936	43320	37700	3582	3097	2687	2338	619	536	465	404	5688	4918	4267	3713	-4508	-3898	-3381	-2943
0.12	0.13	57515	49523	42786	37082	3567	3071	2654	2300	617	531	459	398	5665	4878	4214	3652	-4489	-3866	-3340	-2895
0.13	**0.14**	57295	49145	42298	36520	3554	3048	2623	2265	614	527	454	392	5643	4840	4166	3597	-4472	-3836	-3302	-2851
0.14	0.15	57091	48796	41849	36006	3541	3026	2596	2233	612	523	449	386	5623	4806	4122	3546	-4456	-3809	-3267	-2811
0.15	0.16	56901	48473	41435	35532	3529	3006	2570	2204	610	520	444	381	5604	4774	4081	3500	-4442	-3784	-3234	-2774
0.16	**0.17**	56724	48172	41050	35094	3518	2988	2546	2177	608	517	440	376	5587	4745	4043	3456	-4428	-3760	-3204	-2739
0.17	0.18	56558	47890	40691	34686	3508	2970	2524	2151	607	514	436	372	5570	4717	4008	3416	-4415	-3738	-3176	-2707
0.18	0.19	56401	47626	40355	34304	3498	2954	2503	2128	605	511	433	368	5555	4691	3975	3379	-4402	-3718	-3150	-2678
0.19	**0.20**	56253	47376	40039	33947	3489	2938	2483	2105	603	508	429	364	5540	4666	3943	3344	-4391	-3698	-3125	-2650
0.2	0.21	56113	47141	39741	33611	3480	2924	2465	2085	602	506	426	360	5527	4643	3914	3310	-4380	-3680	-3102	-2624
0.21	0.22	55980	46917	39459	33294	3472	2910	2447	2065	600	503	423	357	5514	4621	3886	3279	-4370	-3662	-3080	-2599
0.22	**0.23**	55853	46705	39191	32994	3464	2897	2431	2046	599	501	420	354	5501	4600	3860	3250	-4360	-3646	-3059	-2575

0.23	0.24	55731	46503	38938	32710	3457	2884	2415	2029	598	499	418	351	5489	4580	3835	3222	-4350	-3630	-3039	-2553
0.24	0.25	55616	46310	38696	32439	3449	2872	2400	2012	596	497	415	348	5478	4561	3811	3195	-4341	-3615	-3020	-2532
0.25	**0.26**	55505	46125	38465	32182	3442	2861	2386	1996	595	495	413	345	5467	4543	3788	3170	-4333	-3600	-3002	-2512
0.26	0.27	55398	45949	38244	31936	3436	2850	2372	1981	594	493	410	343	5456	4526	3767	3145	-4324	-3587	-2985	-2493
0.27	0.28	55296	45779	38033	31701	3430	2839	2359	1966	593	491	408	340	5446	4509	3746	3122	-4316	-3573	-2969	-2474
0.28	**0.29**	55197	45616	37830	31476	3423	2829	2346	1952	592	489	406	338	5436	4493	3726	3100	-4309	-3561	-2953	-2457
0.29	0.3	55102	45459	37636	31261	3418	2819	2334	1939	591	488	404	335	5427	4477	3707	3079	-4301	-3548	-2938	-2440
0.30	0.31	55010	45308	37448	31054	3412	2810	2323	1926	590	486	402	333	5418	4463	3688	3059	-4294	-3537	-2923	-2424
0.31	**0.32**	54922	45163	37268	30855	3406	2801	2311	1914	589	484	400	331	5409	4448	3671	3039	-4287	-3525	-2909	-2408
0.32	0.33	54836	45022	37094	30663	3401	2792	2301	1902	588	483	398	329	5401	4434	3653	3020	-4280	-3514	-2895	-2393
0.33	0.34	54753	44886	36926	30478	3396	2784	2290	1890	587	481	396	327	5393	4421	3637	3002	-4274	-3504	-2882	-2379
0.34	**0.35**	54673	44754	36764	30300	3391	2776	2280	1879	586	480	394	325	5385	4408	3621	2984	-4268	-3493	-2870	-2365
0.35	0.36	54595	44627	36607	30128	3386	2768	2270	1869	586	479	393	323	5377	4395	3606	2967	-4261	-3483	-2857	-2352
0.36	0.37	54519	44503	36455	29962	3381	2760	2261	1858	585	477	391	321	5370	4383	3591	2951	-4256	-3474	-2846	-2339
0.37	**0.38**	54445	44383	36308	29800	3377	2753	2252	1848	584	476	389	320	5362	4371	3576	2935	-4250	-3464	-2834	-2326
0.38	0.39	54374	44267	36165	29644	3372	2746	2243	1839	583	475	388	318	5355	4360	3562	2920	-4244	-3455	-2823	-2314
0.39	0.40	54304	44154	36027	29493	3368	2738	2234	1829	582	474	386	316	5349	4349	3548	2905	-4239	-3446	-2812	-2302
0.40	**0.41**	54236	44043	35892	29346	3364	2732	2226	1820	582	472	385	315	5342	4338	3535	2890	-4234	-3438	-2802	-2291
0.41	0.42	54170	43936	35761	29204	3360	2725	2218	1811	581	471	384	313	5335	4327	3522	2876	-4228	-3430	-2791	-2280
0.42	0.43	54106	43832	35634	29066	3356	2719	2210	1803	580	470	382	312	5329	4317	3510	2863	-4223	-3421	-2781	-2269
0.43	**0.44**	54043	43730	35510	28931	3352	2712	2202	1794	580	469	381	310	5323	4307	3497	2849	-4218	-3413	-2772	-2258
0.44	0.45	53982	43631	35390	28800	3348	2706	2195	1786	579	468	380	309	5317	4297	3486	2837	-4214	-3406	-2762	-2248
0.45	0.46	53922	43534	35272	28673	3344	2700	2188	1778	578	467	378	308	5311	4288	3474	2824	-4209	-3398	-2753	-2238
0.46	**0.47**	53863	43440	35157	28549	3341	2694	2181	1771	578	466	377	306	5305	4278	3463	2812	-4204	-3391	-2744	-2228
0.47	0.48	53806	43348	35046	28428	3337	2688	2174	1763	577	465	376	305	5299	4269	3452	2800	-4200	-3384	-2736	-2219
0.48	0.49	53750	43258	34936	28310	3334	2683	2167	1756	576	464	375	304	5294	4261	3441	2788	-4196	-3377	-2727	-2210
0.49	**0.50**	53695	43169	34830	28195	3330	2677	2160	1749	576	463	374	302	5289	4252	3430	2777	-4191	-3370	-2719	-2201
0.5	0.51	53642	43083	34726	28082	3327	2672	2154	1742	575	462	372	301	5283	4243	3420	2766	-4187	-3363	-2711	-2192
0.51	0.52	53589	42999	34624	27973	3324	2667	2147	1735	575	461	371	300	5278	4235	3410	2755	-4183	-3356	-2703	-2183
0.52	**0.53**	53538	42916	34524	27865	3321	2662	2141	1728	574	460	370	299	5273	4227	3400	2745	-4179	-3350	-2695	-2175
0.53	0.54	53487	42836	34427	27761	3317	2657	2135	1722	574	459	369	298	5268	4219	3391	2734	-4175	-3344	-2687	-2167
0.54	0.55	53438	42756	34331	27658	3314	2652	2129	1715	573	459	368	297	5263	4211	3381	2724	-4171	-3337	-2680	-2159
0.55	**0.56**	53389	42679	34238	27558	3311	2647	2124	1709	573	458	367	296	5258	4204	3372	2714	-4167	-3331	-2673	-2151
0.56	0.57	53342	42603	34147	27460	3308	2642	2118	1703	572	457	366	295	5254	4196	3363	2705	-4164	-3325	-2665	-2143
0.57	0.58	53295	42528	34057	27364	3305	2638	2112	1697	572	456	365	293	5249	4189	3354	2695	-4160	-3320	-2658	-2136
0.58	**0.59**	53249	42455	33969	27270	3303	2633	2107	1691	571	455	364	292	5245	4181	3346	2686	-4156	-3314	-2652	-2129

0.59	0.6	53204	42383	33883	27178	3300	2629	2101	1686	571	455	363	291	5240	4174	3337	2677	-4153	-3308	-2645	-2121
0.60	0.61	53160	42313	33798	27087	3297	2624	2096	1680	570	454	362	291	5236	4167	3329	2668	-4149	-3303	-2638	-2114
0.61	**0.62**	53116	42243	33716	26999	3294	2620	2091	1675	570	453	362	290	5232	4161	3321	2659	-4146	-3297	-2632	-2107
0.62	0.63	53073	42175	33634	26912	3292	2616	2086	1669	569	452	361	289	5227	4154	3313	2651	-4143	-3292	-2625	-2101
0.63	0.64	53031	42108	33554	26827	3289	2612	2081	1664	569	452	360	288	5223	4147	3305	2642	-4139	-3287	-2619	-2094
0.64	**0.65**	52990	42043	33476	26743	3287	2608	2076	1659	568	451	359	287	5219	4141	3297	2634	-4136	-3282	-2613	-2087
0.65	0.66	52949	41978	33399	26661	3284	2604	2071	1654	568	450	358	286	5215	4135	3290	2626	-4133	-3277	-2607	-2081
0.66	0.67	52909	41915	33323	26581	3282	2600	2067	1649	567	450	357	285	5211	4128	3282	2618	-4130	-3272	-2601	-2075
0.67	**0.68**	52869	41852	33249	26502	3279	2596	2062	1644	567	449	357	284	5207	4122	3275	2610	-4127	-3267	-2595	-2069
0.68	0.69	52831	41791	33175	26424	3277	2592	2058	1639	567	448	356	283	5203	4116	3268	2603	-4124	-3262	-2590	-2063
0.69	0.70	52792	41730	33103	26348	3274	2588	2053	1634	566	448	355	283	5200	4110	3260	2595	-4121	-3257	-2584	-2057
0.70	**0.71**	52755	41671	33033	26272	3272	2584	2049	1629	566	447	354	282	5196	4104	3253	2588	-4118	-3253	-2578	-2051
0.71	0.72	52718	41612	32963	26199	3270	2581	2044	1625	565	446	354	281	5192	4098	3247	2580	-4115	-3248	-2573	-2045
0.72	0.73	52681	41554	32894	26126	3267	2577	2040	1620	565	446	353	280	5189	4093	3240	2573	-4112	-3244	-2568	-2039
0.73	**0.74**	52645	41498	32827	26055	3265	2574	2036	1616	565	445	352	279	5185	4087	3233	2566	-4109	-3239	-2562	-2034
0.74	0.75	52609	41442	32761	25985	3263	2570	2032	1612	564	444	351	279	5182	4082	3227	2559	-4107	-3235	-2557	-2028
0.75	0.76	52574	41386	32695	25915	3261	2567	2028	1607	564	444	351	278	5178	4076	3220	2552	-4104	-3230	-2552	-2023
0.76	**0.77**	52540	41332	32631	25847	3259	2563	2024	1603	563	443	350	277	5175	4071	3214	2546	-4101	-3226	-2547	-2018
0.77	0.78	52506	41278	32567	25780	3256	2560	2020	1599	563	443	349	276	5171	4066	3208	2539	-4098	-3222	-2542	-2012
0.78	0.79	52472	41226	32505	25714	3254	2557	2016	1595	563	442	349	276	5168	4060	3201	2533	-4096	-3218	-2537	-2007
0.79	**0.80**	52439	41173	32443	25650	3252	2554	2012	1591	562	442	348	275	5165	4055	3195	2526	-4093	-3214	-2532	-2002
0.8	0.81	52406	41122	32383	25586	3250	2550	2008	1587	562	441	347	274	5162	4050	3189	2520	-4091	-3210	-2528	-1997
0.81	0.82	52374	41071	32323	25523	3248	2547	2005	1583	562	440	347	274	5158	4045	3184	2514	-4088	-3206	-2523	-1992
0.82	**0.83**	52342	41021	32264	25460	3246	2544	2001	1579	561	440	346	273	5155	4040	3178	2508	-4086	-3202	-2518	-1987
0.83	0.84	52310	40972	32205	25399	3244	2541	1997	1575	561	439	345	272	5152	4035	3172	2502	-4083	-3198	-2514	-1983
0.84	0.85	52279	40923	32148	25339	3242	2538	1994	1572	561	439	345	272	5149	4031	3166	2496	-4081	-3194	-2509	-1978
0.85	**0.86**	52248	40875	32091	25279	3241	2535	1990	1568	560	438	344	271	5146	4026	3161	2490	-4078	-3191	-2505	-1973
0.86	0.87	52218	40828	32036	25221	3239	2532	1987	1564	560	438	344	270	5143	4021	3155	2484	-4076	-3187	-2501	-1969
0.87	0.88	52188	40781	31980	25163	3237	2529	1983	1561	560	437	343	270	5140	4017	3150	2478	-4074	-3183	-2496	-1964
0.88	**0.89**	52158	40734	31926	25106	3235	2526	1980	1557	559	437	342	269	5137	4012	3144	2473	-4071	-3180	-2492	-1960
0.89	0.9	52129	40689	31872	25050	3233	2524	1977	1554	559	436	342	269	5134	4008	3139	2467	-4069	-3176	-2488	-1955
0.90	0.91	52100	40644	31819	24994	3231	2521	1973	1550	559	436	341	268	5131	4003	3134	2462	-4067	-3173	-2484	-1951
0.91	**0.92**	52072	40599	31767	24939	3230	2518	1970	1547	558	435	341	267	5129	3999	3129	2456	-4065	-3169	-2480	-1947
0.92	0.93	52043	40555	31715	24885	3228	2515	1967	1543	558	435	340	267	5126	3994	3124	2451	-4062	-3166	-2476	-1942
0.93	0.94	52015	40511	31664	24832	3226	2513	1964	1540	558	434	340	266	5123	3990	3119	2446	-4060	-3162	-2472	-1938
0.94	**0.95**	51988	40468	31614	24779	3224	2510	1961	1537	558	434	339	266	5120	3986	3114	2441	-4058	-3159	-2468	-1934

0.95	0.96	51960	40426	31564	24727	3223	2507	1958	1534	557	434	339	265	5118	3982	3109	2435	-4056	-3155	-2464	-1930
0.96	0.97	51933	40384	31515	24676	3221	2505	1955	1530	557	433	338	265	5115	3977	3104	2430	-4054	-3152	-2460	-1926
0.97	**0.98**	51907	40342	31466	24625	3219	2502	1952	1527	557	433	337	264	5112	3973	3099	2425	-4052	-3149	-2456	-1922
0.98	0.99	51880	40301	31418	24575	3218	2500	1949	1524	556	432	337	264	5110	3969	3094	2420	-4050	-3146	-2452	-1918
0.99	**1.00**	**51854**	**40260**	**31370**	**24525**	**3216**	**2497**	**1946**	**1521**	**556**	**432**	**336**	**263**	**5107**	**3965**	**3090**	**2416**	**-4048**	**-3143**	**-2449**	**-1914**

I93N (north of Boston)

		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**				**ND (6)**			
O	N	-		-		-		-		**-0.**	**-0.**	**-0.**	**-0.**	**-0.**	**-**	**-0.**	**-**	**-0.**	**-**	**-0.**	**-**	**-**		**-**	
P	P	**0.05**	**-0.1**	**0.15**	**-0.2**	**0.05**	**-0.1**	**0.15**	**-0.2**	**05**	**1**	**15**	**2**	**5**	**0.1**	**5**	**0.2**	**5**	**0.1**	**5**	**0.2**	**0.05**	**-0.1**	**0.15**	**-0.2**
0.0	0.0	532	532	532	532	114	114	114	114		97		97	129	12	129	12	313	31	313	31	1028	1028	1028	1028
0	1	36	36	36	36	28	28	28	28	979	9	979	9	5	95	5	95	4	34	4	34	4	4	4	4
0.0	**0.0**	507	483	462	443	108	103	993	952		89		81	123	11	112	10	298	28	272	26	-	-	-	-
1	**2**	01	96	92	63	84	89	7	3	932	0	851	6	3	77	6	79	5	49	5	12	9794	9349	8943	8570
0.0	0.0	494	460	430	403	106	989	924	865		84		74	120	11	104	98	291	27	253	23	-	-	-	-
2	3	64	92	62	30	18	4	4	8	910	8	792	2	3	21	8	1	2	13	5	74	9555	8904	8319	7791
0.0	0.0	486	446	410	378	104	957	880	811		82		69	118	10		92	286	26	241	22	-	-	-	-
3	4	53	05	12	10	44	5	4	6	895	0	754	5	4	85	998	0	4	26	4	26	9399	8617	7923	7304
0.0	**0.0**	480	435	395	360	103	934	848	773		80		66	116	10		87	282	25	232	21	-	-	-	-
4	**5**	53	17	30	09	15	2	6	0	884	0	727	2	9	59	962	6	9	62	7	20	9283	8407	7636	6956
0.0	0.0	475	426	383	346	102	915	823	743		78		63	115	10		84	280	25	225	20	-	-	-	-
5	6	77	64	78	24	13	8	9	3	875	5	706	7	7	38	934	2	1	12	9	38	9191	8242	7414	6689
0.0	0.0	471	419	374	335	101	900	803	719		77		61	114	10		81	277	24	220	19	-	-	-	-
6	7	84	64	42	07	29	8	8	3	868	2	689	6	8	21	911	5	8	70	4	73	9115	8107	7233	6473
0.0	**0.0**	468	413	366	325	100	888	786	699		76		59	114	10		79	275	24	215	19	-	-	-	-
7	**8**	49	73	57	77	57	1	9	3	862	1	674	9	0	06	892	2	8	36	8	18	9050	7992	7081	6293
0.0	0.0	465	408	359	317	999	877	772	682		75		58	113	99		77	274	24	211	18	-	-	-	-
8	9	58	63	82	82	4	2	4	3	856	1	662	4	3	4	875	3	1	06	8	71	8994	7894	6951	6140
0.0	0.1	463	404	353	310	993	867	759	667		74		57	112	98		75	272	23	208	18	-	-	-	-
9	0	01	13	92	91	9	5	8	4	851	3	651	2	6	3	861	6	6	79	4	30	8944	7807	6837	6006
0.1	**0.1**	460	400	348	304	989	859	748	654		73		56	112	97		74	271	23	205	17	-	-	-	-
0	**1**	71	13	69	81	0	0	5	3	847	6	641	1	1	3	848	1	2	56	3	94	8900	7730	6736	5888
0.1	0.1	458	396	344	299	984	851	738	642		72		55	111	96		72	270	23	202	17	-	-	-	-
1	2	62	53	00	37	5	2	5	7	843	9	633	1	6	5	837	8	0	34	5	62	8860	7660	6645	5783
0.1	0.1	456	393	339	294	980	844	729	632		72		54	111	95		71	268	23	200	17	-	-	-	-
2	3	72	25	75	46	4	2	3	1	840	3	625	2	1	7	826	6	9	15	0	34	8823	7597	6563	5688
0.1	**0.1**	454	390	335	290	976	837	721	622		71		53	110	94		70	267	22	197	17	-	-	-	-
3	**4**	97	25	88	00	7	7	0	5	837	8	618	3	7	9	817	5	8	97	7	07	8789	7539	6488	5602
0.1	0.1	453	387	332	285	973	831	713	613		71		52	110	94		69	266	22	195	16	-	-	-	-
4	5	35	48	32	92	2	8	4	8	834	3	611	6	3	3	808	6	9	81	6	83	8758	7485	6420	5523
0.1	0.1	451	384	329	282	970	826	706	605		70		51	109	93		68	266	22	193	16	-	-	-	-
5	6	84	92	03	16	0	3	3	7	831	8	605	9	9	6	800	6	0	66	7	61	8729	7436	6356	5451
0.1	**0.1**	450	382	325	278	966	821	699	598	828	70	599	51	109	93	793	67	265	22	191	16	-	-	-	-

6	**7**	44	52	97	67	9	2	8	2		3		2	6	1		8	2	52	9	41	8701	7390	6297	5383
0.1	0.1	449	380	323	275	964	816	693	591		69		50	109	92		67	264	22	190	16	-	-	-	-
7	8	11	29	12	43	1	4	6	3	826	9	594	7	3	5	786	0	4	39	2	21	8676	7346	6242	5321
0.1	0.1	447	378	320	272	961	811	687	584		69		50	108	92		66	263	22	188	16	-	-	-	-
8	9	87	19	45	41	4	8	9	8	824	5	589	1	9	0	780	3	7	26	6	04	8652	7306	6190	5262
0.1	**0.2**	446	376	317	269	958	807	682	578		69		49	108	91		65	263	22	187	15	-	-	-	-
9	**0**	70	21	94	57	9	6	5	7	821	2	585	6	7	5	773	6	0	15	2	87	8629	7267	6142	5207
	0.2	445	374	315	266	956	803	677	572		68		49	108	91		64	262	22	185	15	-	-	-	-
0.2	1	58	34	57	90	5	6	4	9	819	8	580	1	4	1	768	9	3	04	8	71	8608	7231	6096	5156
0.2	0.2	444	372	313	264	954	799	672	567		68		48	108	90		64	261	21	184	15	-	-	-	-
1	2	52	56	33	38	2	8	6	5	817	5	576	6	1	6	762	3	7	93	5	56	8587	7197	6053	5107
0.2	**0.2**	443	370	311	262	952	796	668	562		68		48	107	90		63	261	21	183	15	-	-	-	-
2	**3**	51	88	21	00	1	1	1	4	816	2	572	2	9	2	757	7	1	83	2	42	8568	7164	6012	5061
0.2	0.2	442	369	309	259	950	792	663	557		67		47	107	89		63	260	21	182	15	-	-	-	-
3	4	55	27	20	74	0	7	7	6	814	9	569	8	7	8	752	2	5	74	0	29	8549	7133	5973	5018
0.2	0.2	441	367	307	257	948	789	659	553		67		47	107	89		62	260	21	180	15	-	-	-	-
4	5	63	74	28	59	0	4	6	0	812	6	565	4	4	5	747	7	0	65	9	16	8531	7104	5936	4976
0.2	**0.2**	440	366	305	255	946	786	655	548		67		47	107	89		62	259	21	179	15	-	-	-	-
5	**6**	75	27	44	55	1	3	7	6	811	4	562	0	2	1	743	2	5	56	8	04	8514	7076	5900	4937
0.2	0.2	439	364	303	253	944	783	651	544		67		46	107	88		61	259	21	178	14	-	-	-	-
6	7	91	87	69	60	3	3	9	4	809	1	558	6	0	8	739	7	0	48	8	93	8498	7048	5867	4899
0.2	0.2	439	363	302	251	942	780	648	540		66		46	106	88		61	258	21	177	14	-	-	-	-
7	8	09	52	01	73	6	4	3	4	807	9	555	3	8	4	735	2	5	40	8	82	8482	7022	5834	4863
0.2	**0.2**	438	362	300	249	940	777	644	536		66		46	106	88		60	258	21	176	14	-	-	-	-
8	**9**	31	23	40	95	9	6	9	6	806	6	552	0	6	1	731	8	0	32	8	71	8467	6997	5803	4828
0.2		437	360	298	248	939	774	641	532		66		45	106	87		60	257	21	175	14	-	-	-	-
9	0.3	56	98	86	24	3	9	5	9	805	4	550	7	4	8	727	4	6	25	9	61	8453	6973	5773	4795
0.3	0.3	436	359	297	246	937	772	638	529		66		45	106	87		60	257	21	175	14	-	-	-	-
0	1	83	78	37	59	7	3	4	4	803	2	547	3	3	5	723	0	2	18	1	52	8439	6950	5745	4764
0.3	**0.3**	436	358	295	245	936	769	635	526		66		45	106	87		59	256	21	174	14	-	-	-	-
1	**2**	12	63	94	01	2	9	3	0	802	0	544	1	1	2	720	6	7	11	2	42	8425	6928	5717	4733
0.3	0.3	435	357	294	243	934	767	632	522		65		44	105	87		59	256	21	173	14	-	-	-	-
2	3	44	51	56	49	8	5	3	7	801	7	542	8	9	0	717	2	3	05	4	33	8412	6906	5690	4704
0.3	0.3	434	356	293	242	933	765	629	519		65		44	105	86		58	256	20	172	14	-	-	-	-
3	4	78	43	23	02	3	1	5	5	800	5	539	5	8	7	713	9	0	98	6	25	8399	6885	5664	4675
0.3	**0.3**	434	355	291	240	932	762	626	516		65		44	105	86		58	255	20	171	14	-	-	-	-
4	**5**	15	39	94	61	0	9	7	5	798	4	537	2	6	4	710	5	6	92	9	16	8387	6865	5640	4648
0.3	0.3	433	354	290	239	930	760	624	513		65		44	105	86		58	255	20	171	14	-	-	-	-
5	6	53	37	69	24	6	7	0	6	797	2	535	0	5	2	707	2	2	86	1	08	8375	6846	5616	4622
0.3	0.3	432	353	289	237	929	758	621	510		65		43	105	86		57	254	20	170	14	-	-	-	-
6	7	93	39	49	92	3	6	4	7	796	0	532	8	3	0	704	9	9	80	4	01	8363	6827	5592	4596
0.3	**0.3**	432	352	288	236	928	756	618	508		64		43	105	85		57	254	20	169	13	-	-	-	-
7	**8**	34	44	32	64	1	6	9	0	795	8	530	5	2	7	701	6	5	75	7	93	8352	6808	5570	4571
0.3	0.3	431	351	287	235	926	754	616	505		64		43	105	85		57	254	20	169	13	-	-	-	-
8	9	77	51	18	40	9	6	5	3	794	6	528	3	0	5	699	3	2	69	1	86	8341	6790	5548	4547
0.3	0.4	431	350	286	234	925	752	614	502		64		43	104	85		57	253	20	168	13	-	-	-	-
9	0	22	61	08	20	7	7	1	7	793	5	526	1	9	3	696	0	9	64	4	79	8330	6773	5526	4524
0.4	**0.4**	430	349	285	233	924	750	611	500		64		42	104	85		56	253	20	167	13	-	-	-	-
0	**1**	68	74	01	03	5	8	8	2	792	3	524	9	8	1	693	7	5	59	8	72	8320	6756	5506	4502
0.4	0.4	430	348	283	231	923	748	609	497	791	64	522	42	104	84	691	56	253	20	167	13	-	-	-	-

1	2	16	89	97	90	4	9	6	8		2		6	6	9		4	2	54	2	65	8310	6740	5486	4480
0.4	0.4	429	348	282	230	922	747	607	495		64		42	104	84		56	252	20	166	13	-	-	-	-
2	3	65	06	96	80	3	2	4	5	790	0	520	4	5	7	688	1	9	49	6	59	8300	6724	5466	4459
0.4	**0.4**	429	347	281	229	921	745	605	493		63		42	104	84		55	252	20	166	13	-	-	-	-
3	**4**	15	25	98	74	2	4	3	2	789	9	519	2	4	5	686	9	6	44	0	52	8290	6708	5447	4438
0.4	0.4	428	346	281	228	920	743	603	490		63		42	104	84		55	252	20	165	13	-	-	-	-
4	5	66	47	02	70	2	7	3	9	788	7	517	1	3	3	684	6	4	40	4	46	8281	6693	5429	4418
0.4	0.4	428	345	280	227	919	742	601	488		63		41	104	84		55	252	20	164	13	-	-	-	-
5	6	18	70	09	68	2	1	3	8	787	6	515	9	2	1	681	4	1	35	9	40	8272	6678	5411	4398
0.4	**0.4**	427	344	279	226	918	740	599	486		63		41	104	83		55	251	20	164	13	-	-	-	-
6	**7**	72	95	18	70	2	5	3	6	787	4	513	7	0	9	679	1	8	31	4	35	8263	6664	5393	4379
0.4	0.4	427	344	278	225	917	738	597	484		63		41	103	83		54	251	20	163	13	-	-	-	-
7	8	26	22	29	74	2	9	4	6	786	3	512	5	9	7	677	9	5	26	8	29	8254	6649	5376	4361
0.4	0.4	426	343	277	224	916	737	595	482		63		41	103	83		54	251	20	163	13	-	-	-	-
8	9	82	50	42	80	2	4	5	6	785	2	510	3	8	6	675	7	3	22	3	23	8245	6636	5359	4343
0.4	**0.5**	426	342	276	223	915	735	593	480		63		41	103	83		54	251	20	162	13	-	-	-	-
9	**0**	38	80	58	89	3	9	7	6	784	0	509	2	7	4	673	5	0	18	8	18	8237	6622	5343	4325
	0.5	425	342	275	223	914	734	591	478		62		41	103	83		54	250	20	162	13	-	-	-	-
0.5	1	96	12	75	00	4	4	9	7	783	9	507	0	6	2	671	2	8	14	3	13	8229	6609	5327	4308
0.5	0.5	425	341	274	222	913	733	590	476		62		40	103	83		54	250	20	161	13	-	-	-	-
1	2	54	45	94	12	5	0	2	8	783	8	506	8	5	1	669	0	5	10	9	08	8221	6596	5311	4291
0.5	**0.5**	425	340	274	221	912	731	588	475		62		40	103	82		53	250	20	161	13	-	-	-	-
2	**3**	13	79	15	27	6	6	5	0	782	7	504	7	4	9	667	8	3	06	4	03	8213	6583	5296	4275
0.5	0.5	424	340	273	220	911	730	586	473		62		40	103	82		53	250	20	160	12	-	-	-	-
3	4	73	15	38	44	8	2	8	2	781	6	503	5	3	7	665	6	0	02	9	98	8205	6571	5281	4258
0.5	0.5	424	339	272	219	910	728	585	471		62		40	103	82		53	249	19	160	12	-	-	-	-
4	5	34	52	62	63	9	8	2	5	780	4	501	4	2	6	663	4	8	99	5	93	8197	6559	5266	4243
0.5	**0.5**	423	338	271	218	910	727	583	469		62		40	103	82		53	249	19	160	12	-	-	-	-
5	**6**	95	90	88	83	1	5	6	8	780	3	500	2	1	4	661	2	6	95	1	88	8190	6547	5252	4227
0.5	0.5	423	338	271	218	909	726	582	468		62		40	103	82		53	249	19	159	12	-	-	-	-
6	7	58	30	15	05	3	2	1	1	779	2	499	1	0	3	660	0	4	92	6	84	8183	6535	5238	4212
0.5	0.5	423	337	270	217	908	724	580	466		62		40	102	82		52	249	19	159	12	-	-	-	-
7	8	20	71	44	29	5	9	5	5	778	1	497	0	9	1	658	9	1	88	2	79	8175	6524	5224	4198
0.5	**0.5**	422	337	269	216	907	723	579	464		62		39	102	82		52	248	19	158	12	-	-	-	-
8	**9**	84	13	74	54	7	7	0	8	778	0	496	8	9	0	656	7	9	85	8	75	8168	6513	5211	4183
0.5		422	336	269	215	906	722	577	463		61		39	102	81		52	248	19	158	12	-	-	-	-
9	0.6	48	56	06	81	9	5	6	3	777	9	495	7	8	9	655	5	7	81	4	70	8161	6502	5198	4169
0.6	0.6	422	336	268	215	906	721	576	461		61		39	102	81		52	248	19	158	12	-	-	-	-
0	1	13	00	39	10	2	3	1	7	776	8	494	6	7	7	653	3	5	78	0	66	8155	6491	5185	4155
0.6	**0.6**	421	335	267	214	905	720	574	460		61		39	102	81		52	248	19	157	12	-	-	-	-
1	**2**	78	45	73	39	4	1	7	2	776	7	492	4	6	6	651	2	3	75	6	62	8148	6480	5172	4142
0.6	0.6	421	334	267	213	904	718	573	458		61		39	102	81		52	248	19	157	12	-	-	-	-
2	3	44	91	08	70	7	9	3	8	775	6	491	3	5	5	650	0	1	72	2	58	8141	6470	5159	4128
0.6	0.6	421	334	266	213	904	717	572	457		61		39	102	81		51	247	19	156	12	-	-	-	-
3	4	11	38	45	03	0	8	0	3	774	5	490	2	4	3	648	8	9	68	9	54	8135	6459	5147	4115
0.6	**0.6**	420	333	265	212	903	716	570	455		61		39	102	81		51	247	19	156	12	-	-	-	-
4	**5**	78	85	82	36	3	7	6	9	774	4	489	1	4	2	647	7	7	65	5	50	8129	6449	5135	4102
0.6	0.6	420	333	265	211	902	715	569	454		61		38	102	81		51	247	19	156	12	-	-	-	-
5	6	46	34	21	71	6	6	3	5	773	3	488	9	3	1	645	5	5	62	1	46	8122	6439	5123	4090
0.6	0.6	420	332	264	211	901	714	568	453	773	61	487	38	102	81	644	51	247	19	155	12	-	-	-	-

6	7	14	84	61	07	9	5	0	1		2		8	2	0		3	3	59	8	43	8116	6430	5112	4077
0.6	**0.6**	419	332	264	210	901	713	566	451		61		38	102	80		51	247	19	155	12	-	-	-	-
7	**8**	83	34	02	44	2	4	8	8	772	1	486	7	1	8	642	2	2	56	4	39	8110	6420	5100	4065
0.6	0.6	419	331	263	209	900	712	565	450		61		38	102	80		51	247	19	155	12	-	-	-	-
8	9	52	85	44	83	6	4	5	4	771	0	484	6	1	7	641	0	0	54	1	35	8104	6411	5089	4053
0.6	0.7	419	331	262	209	899	711	564	449		60		38	102	80		50	246	19	154	12	-	-	-	-
9	0	21	37	87	22	9	3	3	1	771	9	483	5	0	6	639	9	8	51	8	32	8098	6401	5078	4042
0.7	**0.7**	418	330	262	208	899	710	563	447		60		38	101	80		50	246	19	154	12	-	-	-	-
0	**1**	92	90	31	62	3	3	1	8	770	9	482	4	9	5	638	7	6	48	4	28	8092	6392	5067	4030
0.7	0.7	418	330	261	208	898	709	561	446		60		38	101	80		50	246	19	154	12	-	-	-	-
1	2	62	43	75	04	6	3	9	6	770	8	481	3	8	4	637	6	4	45	1	25	8087	6383	5056	4019
0.7	0.7	418	329	261	207	898	708	560	445		60		38	101	80		50	246	19	153	12	-	-	-	-
2	3	33	98	21	46	0	3	7	4	769	7	480	2	8	3	635	5	3	43	8	21	8081	6374	5046	4008
0.7	**0.7**	418	329	260	206	897	707	559	444		60		38	101	80		50	246	19	153	12	-	-	-	-
3	**4**	04	52	67	90	4	4	6	1	769	6	479	0	7	2	634	3	1	40	5	18	8076	6366	5036	3997
0.7	0.7	417	329	260	206	896	706	558	442		60		37	101	80		50	245	19	153	12	-	-	-	-
4	5	76	08	15	34	8	4	4	9	768	5	478	9	6	1	633	2	9	37	1	15	8070	6357	5025	3986
0.7	0.7	417	328	259	205	896	705	557	441		60		37	101	79		50	245	19	152	12	-	-	-	-
5	6	48	64	63	79	2	5	3	8	768	4	477	8	6	9	632	1	8	35	8	11	8065	6349	5015	3975
0.7	**0.7**	417	328	259	205	895	704	556	440		60		37	101	79		49	245	19	152	12	-	-	-	-
6	**7**	21	21	12	25	6	6	2	6	767	4	477	7	5	8	630	9	6	32	5	08	8060	6340	5006	3965
0.7	0.7	416	327	258	204	895	703	555	439		60		37	101	79		49	245	19	152	12	-	-	-	-
7	8	94	78	61	72	0	6	2	5	767	3	476	6	4	7	629	8	5	30	2	05	8054	6332	4996	3955
0.7	0.7	416	327	258	204	894	702	554	438		60		37	101	79		49	245	19	152	12	-	-	-	-
8	9	67	36	11	19	5	7	1	3	766	2	475	6	4	6	628	7	3	27	0	02	8049	6324	4986	3945
0.7	**0.8**	416	326	257	203	893	701	553	437		60		37	101	79		49	245	19	151	11	-	-	-	-
9	**0**	41	95	63	68	9	9	0	2	766	1	474	5	3	5	627	5	1	25	7	99	8044	6316	4977	3935
	0.8	416	326	257	203	893	701	552	436		60		37	101	79		49	245	19	151	11	-	-	-	-
0.8	1	15	54	14	17	3	0	0	1	765	1	473	4	2	4	626	4	0	22	4	96	8039	6308	4967	3925
0.8	0.8	415	326	256	202	892	700	551	435		60		37	101	79		49	244	19	151	11	-	-	-	-
1	2	89	14	67	67	8	1	0	1	765	0	472	3	2	3	624	3	8	20	1	93	8034	6300	4958	3915
0.8	**0.8**	415	325	256	202	892	699	550	434		59		37	101	79		49	244	19	150	11	-	-	-	-
2	**3**	64	74	20	18	2	3	0	0	764	9	471	2	1	2	623	2	7	18	8	90	8029	6293	4949	3906
0.8	0.8	415	325	255	201	891	698	549	433		59		37	101	79		49	244	19	150	11	-	-	-	-
3	4	39	35	74	69	7	4	0	0	764	8	470	1	0	1	622	1	5	15	6	87	8024	6285	4940	3896
0.8	0.8	415	324	255	201	891	697	548	431		59		37	101	79		48	244	19	150	11	-	-	-	-
4	5	14	96	28	21	2	6	0	9	763	8	469	0	0	0	621	9	4	13	3	85	8020	6278	4931	3887
0.8	**0.8**	414	324	254	200	890	696	547	430		59		36	100	79		48	244	19	150	11	-	-	-	-
5	**6**	90	58	83	74	6	8	0	9	763	7	469	9	9	0	620	8	2	11	0	82	8015	6270	4923	3878
0.8	0.8	414	324	254	200	890	696	546	429		59		36	100	78		48	244	19	149	11	-	-	-	-
6	7	65	20	39	27	1	0	1	9	763	6	468	8	9	9	619	7	1	09	8	79	8010	6263	4914	3869
0.8	0.8	414	323	253	199	889	695	545	428		59		36	100	78		48	244	19	149	11	-	-	-	-
7	8	42	83	95	81	6	2	1	9	762	6	467	7	8	8	618	6	0	06	5	76	8006	6256	4906	3860
0.8	**0.8**	414	323	253	199	889	694	544	428		59		36	100	78		48	243	19	149	11	-	-	-	-
8	**9**	18	46	52	36	1	4	2	0	762	5	466	7	8	7	617	5	8	04	2	74	8001	6249	4897	3851
0.8		413	323	253	198	888	693	543	427		59		36	100	78		48	243	19	149	11	-	-	-	-
9	0.9	95	10	09	91	6	6	3	0	761	4	465	6	7	6	616	4	7	02	0	71	7997	6242	4889	3843
0.9	0.9	413	322	252	198	888	692	542	426		59		36	100	78		48	243	19	148	11	-	-	-	-
0	1	72	74	67	47	1	8	4	1	761	4	465	5	6	5	615	3	6	00	7	68	7992	6235	4881	3834
0.9	**0.9**	413	322	252	198	887	692	541	425	760	59	464	36	100	78	614	48	243	18	148	11	-	-	-	-

1	**2**	49	39	25	04	6	1	5	1		3		4	6	4		2	4	98	5	66	7988	6228	4873	3826
0.9	0.9	413	322	251	197	887	691	540	424		59		36	100	78		48	243	18	148	11	-	-	-	-
2	3	27	04	84	61	1	3	6	2	760	2	463	3	5	3	613	1	3	96	3	63	7983	6221	4865	3817
0.9	0.9	413	321	251	197	886	690	539	423		59		36	100	78		48	243	18	148	11	-	-	-	-
3	4	04	69	44	18	7	6	8	3	760	2	462	3	5	3	612	0	2	94	0	61	7979	6214	4857	3809
0.9	**0.9**	412	321	251	196	886	689	538	422		59		36	100	78		47	243	18	147	11	-	-	-	-
4	**5**	82	35	04	77	2	8	9	4	759	1	462	2	4	2	611	9	0	92	8	58	7975	6208	4849	3801
0.9	0.9	412	321	250	196	885	689	538	421		59		36	100	78		47	242	18	147	11	-	-	-	-
5	6	61	01	64	35	7	1	0	5	759	0	461	1	4	1	610	8	9	90	6	56	7971	6201	4842	3793
0.9	0.9	412	320	250	195	885	688	537	420		59		36	100	78		47	242	18	147	11	-	-	-	-
6	7	39	68	25	94	3	4	2	6	758	0	460	0	3	0	609	7	8	88	3	54	7967	6195	4834	3785
0.9	**0.9**	412	320	249	195	884	687	536	419		58		36	100	77		47	242	18	147	11	-	-	-	-
7	**8**	18	35	86	54	8	7	4	8	758	9	459	0	3	9	608	6	7	86	1	51	7962	6188	4827	3777
0.9	0.9	411	320	249	195	884	687	535	418		58		35	100	77		47	242	18	146	11	-	-	-	-
8	9	97	02	48	14	4	0	6	9	758	9	459	9	2	8	607	5	5	84	9	49	7958	6182	4819	3770
0.9	1.0	**411**	**319**	**249**	**194**	**883**	**686**	**534**	**418**		**58**		**35**	**100**	**77**		**47**	**242**	**18**	**146**	**11**	**-**	**-**	**-**	**-**
9	0	**76**	**70**	**11**	**75**	**9**	**3**	**7**	**1**	**757**	**8**	**458**	**8**	**2**	**8**	**606**	**4**	**4**	**82**	**6**	**46**	**7954**	**6176**	**4812**	**3762**

I93S (north of Boston)

		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**				**ND (6)**			
O	N	**-**		**-**		**-0.05**	**-**	**-0.15**	**-**	**-0.05**		**-0.15**		**-0.05**		**-0.15**		**-0.05**		**-0.15**		**-0.05**		**-0.15**	
P	P	**0.05**	**-0.1**	**0.15**	**-0.2**	**5**	**0.1**	**5**	**0.2**	**5**	**-0.1**	**5**	**-0.2**	**5**	**-0.1**	**5**	**-0.2**	**5**	**-0.1**	**5**	**-0.2**	**5**	**-0.1**	**5**	**-0.2**
0.	0.0	608	608	608	608	93	93	93	93	321	321	321	321	147	147	147	147	336	336	336	336	935	935	935	935
00	1	01	01	01	01	12	12	12	12	6	6	6	6	6	6	6	6	6	6	6	6	3	3	3	3
0.	**0.0**	579	552	528	506	88	84	80	77	306	292	279	268	140	134	128	123	320	306	292	280	890	850	813	779
01	**2**	06	74	70	68	69	65	97	60	3	4	7	0	6	2	3	0	6	0	7	5	8	3	3	4
0.	0.0	564	526	491	460	86	80	75	70	298	278	260	243	137	127	119	111	312	291	272	255	869	809	756	708
02	3	93	42	82	61	52	62	32	55	8	4	1	6	1	8	4	8	8	4	3	0	0	8	6	6
0.	0.0	555	509	468	431	85	78	71	66	293	269	247	228	134	123	113	104	307	282	259	239	854	783	720	664
03	4	67	43	40	83	10	02	74	14	9	5	8	4	9	7	7	8	6	0	3	1	8	7	5	3
0.	**0.0**	548	497	451	411	84	76	69	62	290	262	238	217	133	120	109	-	303	275	249	227	844	764	694	632
04	**5**	81	01	47	26	05	12	14	99	3	9	8	5	2	7	6	998	8	1	9	7	2	5	5	6
0.	0.0	543	487	438	395	83	74	67	60	287	257	231	209	131	118	106	-	300	269	242	218	835	749	674	608
05	6	38	26	32	44	22	63	13	56	4	7	8	2	9	3	4	960	8	8	7	9	9	6	3	3
0.	0.0	538	479	427	382	82	73	65	58	285	253	226	202	130	116	103	-	298	265	236	211	829	737	657	588
06	7	89	28	63	69	53	40	49	61	0	5	2	4	8	3	8	929	3	3	7	9	0	3	8	7
0.	**0.0**	535	472	418	372	81	72	64	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	**8**	07	53	66	06	95	37	12	98	283	249	221	196	129	114	101	903	296	261	231	206	823	726	644	572

										0	9	4	8	9	7	6		2	6	8	0	1	9	0	3
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.0	531	466	410	362	81	71	62	55	281	246	217	192	129	113	-	-	294	258	227	201	818	717	632	558
08	9	74	69	95	98	44	48	94	59	3	9	4	0	1	3	998	881	4	4	5	0	0	9	2	4
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	528	461	404	355	80	70	61	54	279	244	213	187	128	112	-	-	292	255	223	196	813	710	621	546
09	0	80	56	21	09	99	69	91	38	7	1	8	8	4	0	981	862	8	5	8	6	5	0	8	2
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.1**	526	456	398	348	80	69	60	53	278	241	210	184	127	110	-	-	291	253	220	192	809	703	612	535
10	**1**	17	99	24	13	59	99	99	32	3	7	6	1	7	9	967	845	3	0	5	7	4	0	6	5
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	523	452	392	341	80	69	60	52	277	239	207	180	127	109	-	-	290	250	217	189	805	696	604	526
11	2	79	88	88	91	22	36	17	37	1	5	8	9	2	9	954	830	0	7	5	3	7	7	4	0
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	521	449	388	336	79	68	59	51	275	237	205	177	126	109	-	-	288	248	214	186	802	690	596	517
12	3	62	13	03	31	89	79	43	51	9	6	2	9	6	0	942	816	8	6	8	2	4	9	9	3
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.1**	519	445	383	331	79	68	58	50	274	235	202	175	126	108	-	-	287	246	212	183	799	685	590	509
13	**4**	62	71	61	21	58	26	75	73	8	8	9	2	1	2	931	804	7	7	4	4	3	6	1	5
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	517	442	379	326	79	67	58	50	273	234	200	172	125	107	-	-	286	245	210	180	796	680	583	502
14	5	77	54	54	55	30	78	13	01	9	1	8	7	7	4	921	793	6	0	1	8	5	8	8	3
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	516	439	375	322	79	67	57	49	273	232	198	170	125	106	-	-	285	243	208	178	793	676	578	495
15	6	05	61	78	25	04	33	55	35	0	5	8	5	3	7	912	782	7	4	0	4	8	3	1	7
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.1**	514	436	372	318	78	66	57	48	272	231	196	168	124	106	-	-	284	241	206	176	791	672	572	489
16	**7**	44	88	29	27	79	91	02	75	1	1	9	3	9	1	904	773	8	9	1	2	4	1	7	6
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	512	434	369	314	78	66	56	48	271	229	195	166	124	105	-	-	284	240	204	174	789	668	567	483
17	8	94	33	04	57	56	52	52	18	3	7	2	4	5	4	896	764	0	4	3	1	0	1	7	9
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.1	511	431	365	311	78	66	56	47	270	228	193	164	124	104	-	-	283	239	202	172	786	664	563	478
18	9	51	93	99	11	34	15	05	65	6	5	6	6	2	9	888	755	2	1	6	2	9	4	0	6
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.2**	510	429	363	307	78	65	55	47	269	227	192	162	123	104	-	-	282	237	201	170	784	661	558	473
19	**0**	17	67	12	87	14	81	61	15	8	3	1	8	8	3	882	747	4	9	0	4	8	0	6	6
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.2	508	427	360	304	77	65	55	46	269	226	190	161	123	103	-	-	281	236	199	168	782	657	554	468
2	1	90	53	42	83	94	48	20	69	2	1	6	2	5	8	875	740	7	7	5	8	8	7	4	9
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.2	507	425	357	301	77	65	54	46	268	225	189	159	123	103	-	-	281	235	198	167	781	654	550	464
21	2	69	50	86	95	76	17	81	25	5	1	3	7	2	3	869	733	1	6	1	2	0	6	5	5
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.2**	506	423	355	299	77	64	54	45	267	224	188	158	123	102	-	-	280	234	196	165	779	651	546	460
22	**3**	54	58	44	23	58	87	44	83	9	0	0	3	0	8	863	726	4	5	8	7	2	6	8	3
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.2	505	421	353	296	77	64	54	45	267	223	186	156	122	102	-	-	279	233	195	164	777	648	543	456
23	4	44	74	13	65	41	59	08	43	3	1	8	9	7	4	857	720	8	5	5	2	5	8	2	3
0.	0.2	504	419	350	294	77	64	53	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

24	5	39	99	94	20	25	32	75	06	266	222	185	155	122	102	852	714	279	232	194	162	775	646	539	452
										8	2	6	6	4	0			2	5	3	9	9	1	9	6
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.2**	503	418	348	291	77	64	53	44	266	221	184	154	122	101	-	-	278	231	193	161	774	643	536	449
25	**6**	38	32	85	86	10	07	43	70	3	3	5	4	2	6	847	709	7	6	1	6	4	5	6	0
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.2	502	416	346	289	76	63	53	44	265	220	183	153	122	101	-	-	278	230	192	160	772	641	533	445
26	7	42	72	85	64	95	82	12	36	7	4	5	2	0	2	842	703	1	7	0	3	9	0	6	5
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	0.2	501	415	344	287	76	63	52	44	265	219	182	152	121	100	-	-	277	229	191	159	771	638	530	442
27	8	49	18	93	51	81	59	83	03	3	6	4	1	7	8	837	698	6	8	0	2	4	7	6	3
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.	**0.2**	500	413	343	285	76	63	52	43	264	218	181	151	121	100	-	-	277	229	189	158	770	636	527	439
28	**9**	59	70	09	47	67	36	55	72	8	8	5	0	5	4	833	693	1	0	9	0	1	4	8	1
										-	-	-	-	-	-			-	-	-	-	-	-	-	-
0.		499	412	341	283	76	63	52	43	264	218	180	150	121	100	-	-	276	228	189	157	768	634	525	436
29	0.3	73	28	33	51	54	14	28	42	3	1	5	0	3	1	829	688	7	2	0	0	7	2	1	1
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	498	410	339	281	76	62	52	43	263	217	179	149	121	-	-	-	276	227	188	155	767	632	522	433
30	1	90	91	63	63	41	93	02	13	9	3	6	0	1	998	824	684	2	5	0	9	5	1	4	2
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.3**	498	409	337	279	76	62	51	42	263	216	178	148	120	-	-	-	275	226	187	154	766	630	519	430
31	**2**	10	59	99	83	29	73	77	86	5	6	8	0	9	994	821	679	8	8	1	9	2	1	9	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	497	408	336	278	76	62	51	42	263	216	177	147	120	-	-	-	275	226	186	154	765	628	517	427
32	3	32	31	42	09	17	54	52	59	1	0	9	1	7	991	817	675	3	0	2	0	0	1	5	8
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	496	407	334	276	76	62	51	42	262	215	177	146	120	-	-	-	274	225	185	153	763	626	515	425
33	4	57	08	89	42	05	35	29	33	7	3	1	2	5	988	813	671	9	4	4	0	9	2	2	2
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.3**	495	405	333	274	75	62	51	42	262	214	176	145	120	-	-	-	274	224	184	152	762	624	512	422
34	**5**	84	89	42	80	94	16	07	09	3	7	4	4	4	985	809	667	5	7	6	1	7	4	9	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	495	404	332	273	75	61	50	41	261	214	175	144	120	-	-	-	274	224	183	151	761	622	510	420
35	6	13	73	00	24	83	99	85	85	9	1	6	5	2	983	806	663	1	1	8	3	7	6	7	3
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	494	403	330	271	75	61	50	41	261	213	174	143	120	-	-	-	273	223	183	150	760	620	508	418
36	7	45	61	62	73	73	81	64	62	5	5	9	7	0	980	803	660	7	4	0	4	6	9	6	0
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.3**	493	402	329	270	75	61	50	41	261	212	174	143	119	-	-	-	273	222	182	149	759	619	506	415
37	**8**	78	52	29	27	62	65	43	39	2	9	2	0	9	977	799	656	4	8	3	6	6	2	5	8
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.3	493	401	327	268	75	61	50	41	260	212	173	142	119	-	-	-	273	222	181	148	758	617	504	413
38	9	13	47	99	85	53	49	23	18	8	4	5	2	7	975	796	653	0	3	6	8	6	6	5	6
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.4	492	400	326	267	75	61	50	40	260	211	172	141	119	-	-	-	272	221	180	148	757	616	502	411
39	0	50	44	74	48	43	33	04	97	5	8	8	5	6	972	793	649	7	7	9	1	6	0	6	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.4**	491	399	325	266	75	61	49	40	260	211	172	140	119	-	-	-	272	221	180	147	756	614	500	409
40	**1**	88	44	52	15	33	18	85	76	2	3	2	8	4	970	790	646	3	1	2	3	7	5	7	4

0.41	0.42	49128	39847	32433	26486	7524	6103	4967	4056	-2599	-2108	-1715	-1401	-1193	-967	-787	-643	-2720	-2206	-1796	-1466	-7557	-6130	-4989	-4074
0.42	0.43	49070	39752	32317	26360	7515	6088	4950	4037	-2596	-2103	-1709	-1394	-1191	-965	-785	-640	-2717	-2201	-1789	-1459	-7548	-6115	-4971	-4055
0.43	**0.44**	49013	39660	32205	26238	7507	6074	4932	4019	-2592	-2098	-1703	-1388	-1190	-963	-782	-637	-2713	-2196	-1783	-1453	-7540	-6101	-4954	-4036
0.44	0.45	48957	39570	32096	26119	7498	6060	4916	4000	-2590	-2093	-1698	-1382	-1188	-961	-779	-634	-2710	-2191	-1777	-1446	-7531	-6087	-4937	-4018
0.45	0.46	48903	39482	31989	26004	7490	6047	4899	3983	-2587	-2088	-1692	-1375	-1187	-958	-777	-631	-2707	-2186	-1771	-1440	-7523	-6074	-4921	-4000
0.46	**0.47**	48850	39397	31885	25891	7482	6034	4883	3965	-2584	-2084	-1687	-1369	-1186	-956	-774	-629	-2704	-2181	-1765	-1433	-7515	-6060	-4905	-3983
0.47	0.48	48798	39313	31784	25782	7474	6021	4868	3949	-2581	-2079	-1681	-1364	-1185	-954	-772	-626	-2702	-2176	-1760	-1427	-7507	-6047	-4889	-3966
0.48	0.49	48747	39231	31685	25675	7466	6008	4853	3932	-2578	-2075	-1676	-1358	-1183	-952	-769	-623	-2699	-2172	-1754	-1421	-7499	-6035	-4874	-3950
0.49	**0.50**	48698	39151	31588	25570	7458	5996	4838	3916	-2576	-2071	-1671	-1353	-1182	-950	-767	-621	-2696	-2167	-1749	-1416	-7491	-6023	-4859	-3933
0.5	0.51	48649	39073	31493	25468	7451	5984	4823	3901	-2573	-2067	-1666	-1347	-1181	-949	-765	-618	-2693	-2163	-1744	-1410	-7484	-6011	-4845	-3918
0.51	0.52	48601	38997	31401	25369	7444	5973	4809	3885	-2571	-2063	-1661	-1342	-1180	-947	-762	-616	-2691	-2159	-1738	-1404	-7476	-5999	-4830	-3902
0.52	**0.53**	48555	38922	31311	25272	7436	5961	4795	3870	-2568	-2059	-1656	-1337	-1179	-945	-760	-613	-2688	-2155	-1733	-1399	-7469	-5987	-4817	-3888
0.53	0.54	48509	38849	31222	25177	7429	5950	4782	3856	-2566	-2055	-1651	-1332	-1178	-943	-758	-611	-2685	-2151	-1729	-1394	-7462	-5976	-4803	-3873
0.54	0.55	48464	38777	31136	25084	7423	5939	4769	3842	-2563	-2051	-1647	-1327	-1177	-941	-756	-609	-2683	-2147	-1724	-1389	-7455	-5965	-4790	-3859
0.55	**0.56**	48420	38706	31051	24993	7416	5928	4756	3828	-2561	-2047	-1642	-1322	-1175	-940	-754	-607	-2681	-2143	-1719	-1384	-7448	-5954	-4777	-3845
0.56	0.57	48377	38637	30968	24904	7409	5918	4743	3814	-2559	-2044	-1638	-1317	-1174	-938	-752	-605	-2678	-2139	-1714	-1379	-7442	-5944	-4764	-3831
0.57	0.58	48334	38570	30887	24817	7403	5907	4731	3801	-255	-204	-163	-131	-117	-936	-750	-602	-267	-213	-171	-137	-743	-593	-475	-381

										7	0	4	3	3				6	5	0	4	5	3	1	8
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.5**	482	385	308	247	73	58	47	37	255	203	163	130	117	-	-	-	267	213	170	136	742	592	473	380
58	**9**	93	03	07	32	96	97	18	88	4	7	0	8	2	935	748	600	4	2	6	9	9	3	9	4
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.		482	384	307	246	73	58	47	37	255	203	162	130	117	-	-	-	267	212	170	136	742	591	472	379
59	0.6	52	38	29	48	90	87	06	75	2	3	5	4	1	933	746	598	1	8	1	5	3	3	7	2
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	482	383	306	245	73	58	46	37	255	203	162	129	117	-	-	-	266	212	169	136	741	590	471	377
60	1	12	74	53	66	84	77	95	62	0	0	1	9	0	932	744	596	9	4	7	0	6	3	5	9
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.6**	481	383	305	244	73	58	46	37	254	202	161	129	116	-	-	-	266	212	169	135	741	589	470	376
61	**2**	72	11	77	86	78	68	83	50	8	6	7	5	9	930	742	594	7	1	3	6	0	3	4	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	481	382	305	244	73	58	46	37	254	202	161	129	116	-	-	-	266	211	168	135	740	588	469	375
62	3	33	50	04	07	72	58	72	38	6	3	3	1	8	929	741	593	5	8	9	1	4	4	2	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	480	381	304	243	73	58	46	37	254	202	161	128	116	-	-	-	266	211	168	134	739	587	468	374
63	4	95	89	31	30	66	49	61	26	4	0	0	7	8	927	739	591	3	4	5	7	8	5	1	3
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.6**	480	381	303	242	73	58	46	37	254	201	160	128	116	-	-	-	266	211	168	134	739	586	467	373
64	**5**	58	30	60	54	60	40	50	15	2	7	6	3	7	926	737	589	1	1	1	3	3	5	0	1
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	480	380	302	241	73	58	46	37	254	201	160	127	116	-	-	-	265	210	167	133	738	585	466	372
65	6	21	71	90	80	55	31	39	03	0	4	2	9	6	924	735	587	8	8	7	9	7	6	0	0
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	479	380	302	241	73	58	46	36	253	201	159	127	116	-	-	-	265	210	167	133	738	584	464	370
66	7	84	13	21	07	49	22	29	92	8	1	9	5	5	923	734	585	6	4	3	5	1	8	9	8
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.6**	479	379	301	240	73	58	46	36	253	200	159	127	116	-	-	-	265	210	166	133	737	583	463	369
67	**8**	49	57	54	35	44	13	18	81	6	8	5	1	4	921	732	583	4	1	9	1	6	9	9	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.6	479	379	300	239	73	58	46	36	253	200	159	126	116	-	-	-	265	209	166	132	737	583	462	368
68	9	13	01	87	64	38	05	08	70	4	5	1	8	3	920	730	582	3	8	6	7	0	0	8	6
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	478	378	300	238	73	57	45	36	253	200	158	126	116	-	-	-	265	209	166	132	736	582	461	367
69	0	79	46	22	95	33	96	98	60	2	2	8	4	2	919	729	580	1	5	2	3	5	2	8	6
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.7**	478	377	299	238	73	57	45	36	253	199	158	126	116	-	-	-	264	209	165	131	736	581	460	366
70	**1**	44	92	58	27	28	88	88	49	1	9	5	0	1	917	727	578	9	2	9	9	0	4	8	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	478	377	298	237	73	57	45	36	252	199	158	125	116	-	-	-	264	208	165	131	735	580	459	365
71	2	11	39	95	60	22	80	79	39	9	6	1	7	1	916	726	577	7	9	5	5	5	5	9	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	477	376	298	236	73	57	45	36	252	199	157	125	116	-	-	-	264	208	165	131	735	579	458	364
72	3	78	87	33	94	17	72	69	29	7	3	8	3	0	915	724	575	5	6	2	2	0	7	9	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.7**	477	376	297	236	73	57	45	36	252	199	157	125	115	-	-	-	264	208	164	130	734	578	458	363
73	**4**	45	35	72	30	12	64	60	19	5	1	5	0	9	914	723	574	3	4	8	8	5	9	0	5
0.	0.7	477	375	297	235	73	57	45	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

74	5	13	84	11	66	07	56	50	09	252	198	157	124	115	912	721	572	264	208	164	130	734	578	457	362
										4	8	2	6	8				1	1	5	5	0	2	0	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	476	375	296	235	73	57	45	36	252	198	156	124	115	-	-	-	264	207	164	130	733	577	456	361
75	6	81	34	52	03	03	49	41	00	2	5	8	3	7	911	720	571	0	8	2	1	5	4	1	6
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.7**	476	374	295	234	72	57	45	35	252	198	156	124	115	-	-	-	263	207	163	129	733	576	455	360
76	**7**	49	85	94	42	98	41	32	90	0	3	5	0	7	910	718	569	8	5	8	8	0	6	2	6
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	476	374	295	233	72	57	45	35	251	198	156	123	115	-	-	-	263	207	163	129	732	575	454	359
77	8	19	36	36	81	93	34	24	81	9	0	2	7	6	909	717	568	6	3	5	4	5	9	4	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.7	475	373	294	233	72	57	45	35	251	197	155	123	115	-	-	-	263	207	163	129	732	575	453	358
78	9	88	88	79	21	88	26	15	72	7	8	9	4	5	908	716	566	5	0	2	1	0	1	5	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.8**	475	373	294	232	72	57	45	35	251	197	155	123	115	-	-	-	263	206	162	128	731	574	452	357
79	**0**	58	41	24	62	84	19	06	63	6	5	6	0	5	906	714	565	3	7	9	8	6	4	6	8
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	475	372	293	232	72	57	44	35	251	197	155	122	115	-	-	-	263	206	162	128	731	573	451	356
8	1	28	94	68	04	79	12	98	54	4	3	3	7	4	905	713	563	1	5	6	5	1	7	8	9
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	474	372	293	231	72	57	44	35	251	197	155	122	115	-	-	-	263	206	162	128	730	573	450	356
81	2	99	48	14	47	75	05	90	45	2	0	1	4	3	904	712	562	0	2	3	1	7	0	9	1
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.8**	474	372	292	230	72	56	44	35	251	196	154	122	115	-	-	-	262	206	162	127	730	572	450	355
82	**3**	70	03	61	91	70	98	81	36	1	8	8	1	2	903	710	561	8	0	0	8	2	3	1	2
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	474	371	292	230	72	56	44	35	250	196	154	121	115	-	-	-	262	205	161	127	729	571	449	354
83	4	41	58	08	35	66	91	73	28	9	5	5	8	2	902	709	559	6	7	7	5	8	6	3	3
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	474	371	291	229	72	56	44	35	250	196	154	121	115	-	-	-	262	205	161	127	729	570	448	353
84	5	13	14	56	80	62	84	65	20	8	3	2	6	1	901	708	558	5	5	4	2	4	9	5	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.8**	473	370	291	229	72	56	44	35	250	196	153	121	115	-	-	-	262	205	161	126	728	570	447	352
85	**6**	85	71	04	27	57	78	57	11	6	1	9	3	0	900	707	557	3	2	1	9	9	3	7	7
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	473	370	290	228	72	56	44	35	250	195	153	121	115	-	-	-	262	205	160	126	728	569	446	351
86	7	58	28	54	73	53	71	50	03	5	9	7	0	0	899	705	555	2	0	8	6	5	6	9	9
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.8	473	369	290	228	72	56	44	34	250	195	153	120	114	-	-	-	262	204	160	126	728	568	446	351
87	8	31	85	04	21	49	64	42	95	3	6	4	7	9	898	704	554	0	8	6	3	1	9	2	1
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	**0.8**	473	369	289	227	72	56	44	34	250	195	153	120	114	-	-	-	261	204	160	126	727	568	445	350
88	**9**	04	43	54	69	45	58	35	87	2	4	2	4	8	897	703	553	9	5	3	1	7	3	4	3
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.		472	369	289	227	72	56	44	34	250	195	152	120	114	-	-	-	261	204	160	125	727	567	444	349
89	0.9	77	02	06	18	41	52	27	79	1	2	9	2	8	896	702	552	7	3	0	8	3	7	7	5
										-	-	-	-	-				-	-	-	-	-	-	-	-
0.	0.9	472	368	288	226	72	56	44	34	249	195	152	119	114	-	-	-	261	204	159	125	726	567	443	348
90	1	51	61	58	68	37	45	20	72	9	0	6	9	7	895	701	550	6	1	8	5	9	0	9	7

0.91	**0.92**	472 25	368 20	288 10	226 18	72 33	56 39	44 12	34 64	-249 8	-194 8	-152 4	-119 6	114 6	- 894	- 699	- 549	-261 4	-203 8	-159 5	-125 2	-726 5	-566 4	-443 2	-347 9
0.92	0.93	471 99	367 80	287 63	225 69	72 29	56 33	44 05	34 57	-249 7	-194 5	-152 1	-119 4	114 6	- 893	- 698	- 548	-261 3	-203 6	-159 2	-124 9	-726 1	-565 8	-442 5	-347 2
0.93	0.94	471 74	367 41	287 17	225 20	72 25	56 27	43 98	34 49	-249 5	-194 3	-151 9	-119 1	114 5	- 892	- 697	- 547	-261 2	-203 4	-159 0	-124 7	-725 7	-565 2	-441 8	-346 4
0.94	**0.95**	471 49	367 02	286 71	224 73	72 21	56 21	43 91	34 42	-249 4	-194 1	-151 7	-118 9	114 5	- 891	- 696	- 546	-261 0	-203 2	-158 7	-124 4	-725 3	-564 6	-441 0	-345 7
0.95	0.96	471 24	366 63	286 26	224 25	72 17	56 15	43 84	34 35	-249 3	-193 9	-151 4	-118 6	114 4	- 890	- 695	- 544	-260 9	-203 0	-158 5	-124 1	-724 9	-564 0	-440 4	-345 0
0.96	0.97	471 00	366 25	285 81	223 79	72 14	56 09	43 77	34 27	-249 1	-193 7	-151 2	-118 4	114 3	- 889	- 694	- 543	-260 7	-202 8	-158 2	-123 9	-724 5	-563 4	-439 7	-344 3
0.97	**0.98**	470 75	365 87	285 37	223 33	72 10	56 04	43 71	34 20	-249 0	-193 5	-150 9	-118 1	114 3	- 888	- 693	- 542	-260 6	-202 5	-158 0	-123 6	-724 2	-562 8	-439 0	-343 5
0.98	0.99	470 51	365 50	284 94	222 87	72 06	55 98	43 64	34 13	-248 9	-193 3	-150 7	-117 9	114 2	- 887	- 692	- 541	-260 5	-202 3	-157 7	-123 4	-723 8	-562 2	-438 3	-342 8
0.99	**1.00**	**470 27**	**365 13**	**284 50**	**222 42**	**72 03**	**55 92**	**43 57**	**34 07**	**-248 7**	**-193 1**	**-150 5**	**-117 6**	**114 2**	**- 886**	**- 691**	**- 540**	**-260 3**	**-202 1**	**-157 5**	**-123 1**	**-723 4**	**-561 7**	**-437 7**	**-342 2**

I93S (North of Boston) -- Congestion

		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**				**ND (6)**			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**0.05**	**-0.1**	**-0.15**	**-0.2**	**0.05**	**0.1**	**0.15**	**0.2**	**0.05**	**0.1**	**0.15**	**0.2**	**0.05**	**0.1**	**0.15**	**0.2**	**0.05**	**-0.1**	**0.15**	**-0.2**
0.00	0.01	153 05	1530 5	1530 5	1530 5	- 1747	174 7	174 7	174 7	- 935	93 5	- 935	93 5	226	22 6	226	22 6	- 630	63 0	- 630	63 0	154 5	154 5	154 5	154 5
0.01	**0.02**	145 76	1391 4	1330 9	1275 4	- 1664	158 8	151 9	145 6	- 890	85 0	- 813	77 9	215	20 5	197	18 8	- 600	57 3	- 548	52 5	147 1	140 5	134 3	128 8
0.02	0.03	142 21	1325 1	1238 0	1159 5	- 1623	151 3	141 3	132 3	- 869	81 0	- 756	70 8	210	19 6	183	17 1	- 585	54 5	- 510	47 7	143 6	133 8	125 0	117 0
0.03	0.04	139 88	1282 4	1179 1	1087 0	- 1597	146 4	134 6	124 1	- 855	78 3	- 720	66 4	207	18 9	174	16 1	- 576	52 8	- 485	44 7	141 2	129 5	119 0	109 7
0.04	**0.05**	138 15	1251 1	1136 4	1035 2	- 1577	142 8	129 7	118 2	- 844	76 4	- 694	63 2	204	18 5	168	15 3	- 569	51 5	- 468	42 6	139 5	126 3	114 7	104 5

							-	-	-		-		-						-		-	-	-	-	
0.0	0.0	136	1226	1103		-	140	125	113	-	74	-	60		18		14	-	50	-	41	138	123	111	100
5	6	78	6	3	9954	1561	0	9	6	836	9	674	8	202	1	163	7	563	5	454	0	1	8	4	5
							-	-	-		-		-						-		-	-	-	-	
0.0	0.0	135	1206	1076		-	137	122	110	-	73	-	58		17		14	-	49	-	39	136	121	108	-
6	7	65	4	4	9633	1548	7	9	0	829	7	658	8	200	8	159	2	558	7	443	7	9	8	7	972
							-	-	-		-		-						-		-	-	-	-	
0.0	**0.0**	134	1189	1053		-	135	120	106	-	72	-	57		17		13	-	49	-	38	136	120	106	-
7	**8**	69	5	9	9366	1537	8	3	9	823	7	644	2	199	6	156	8	554	0	434	6	0	1	4	945
							-	-	-		-		-						-		-	-	-	-	
0.0	0.0	133	1174	1034		-	134	118	104	-	71	-	55		17		13	-	48	-	37	135	118	104	-
8	9	85	8	5	9137	1528	1	1	3	818	8	632	8	198	3	153	5	551	4	426	6	1	6	4	922
							-	-	-		-		-						-		-	-	-	-	
0.0	0.1	133	1161	1017		-	132	116	102	-	71	-	54		17		13	-	47	-	36	134	117	102	-
9	0	11	9	5	8938	1519	6	1	0	813	0	622	6	197	2	150	2	548	8	419	8	4	3	7	902
							-	-	-		-		-						-		-	-	-	-	
0.1	**0.1**	132	1150	1002		-	131	114	100	-	70	-	53		17		12	-	47	-	36	133	116	101	-
0	**1**	45	4	5	8763	1512	3	4	0	809	3	612	5	196	0	148	9	545	4	413	1	7	1	2	885
							-	-			-		-						-		-	-	-		
0.1	0.1	131	1140			-	130	112	-	-	69	-	52		16		12	-	46	-	35	133	115	-	-
1	2	85	0	9890	8607	1505	1	9	982	805	6	604	6	195	8	146	7	543	9	407	4	1	1	998	869
							-	-			-		-						-		-	-	-		
0.1	0.1	131	1130			-	129	111	-	-	69	-	51		16		12	-	46	-	34	132	114	-	-
2	3	30	6	9768	8466	1499	0	5	966	802	1	597	7	194	7	144	5	540	5	402	8	5	1	986	855
							-	-			-		-						-		-	-	-		
0.1	**0.1**	130	1121			-	128	110	-	-	68	-	50		16		12	-	46	-	34	132	113	-	-
3	**4**	80	9	9656	8337	1493	1	2	952	799	5	590	9	193	6	143	3	538	2	397	3	0	3	975	842
							-	-			-		-						-		-	-	-		
0.1	0.1	130	1114			-	127	109	-	-	68	-	50		16		12	-	45	-	33	131	112	-	-
4	5	34	0	9554	8220	1488	2	1	938	796	1	584	2	192	4	141	1	536	9	393	8	6	5	964	830
							-	-			-		-						-		-	-	-		
0.1	0.1	129	1106			-	126	108	-	-	67	-	49		16		12	-	45	-	33	131	111	-	-
5	6	90	6	9459	8112	1483	3	0	926	794	6	578	6	192	3	140	0	535	6	389	4	1	7	955	819
							-	-			-		-						-		-	-	-		
0.1	**0.1**	129	1099			-	125	107	-	-	67	-	48		16		11	-	45	-	33	130	111	-	-
6	**7**	50	7	9371	8012	1478	5	0	914	791	2	573	9	191	2	138	8	533	3	386	0	7	0	946	809
							-	-			-		-						-		-	-	-		
0.1	0.1	129	1093			-	124	106	-	-	66	-	48		16		11	-	45	-	32	130	110	-	-
7	8	12	3	9289	7918	1474	8	0	904	789	8	568	4	191	1	137	7	531	0	382	6	3	4	938	799
							-	-			-		-						-		-	-	-		
0.1	0.1	128	1087			-	124	105	-	-	66	-	47		16		11	-	44	-	32	130	109	-	-
8	9	76	3	9213	7831	1470	1	2	894	787	4	563	8	190	1	136	6	530	8	379	2	0	8	930	791
							-	-			-		-						-		-	-	-		
0.1	**0.2**	128	1081			-	123	104	-	-	66	-	47		16		11	-	44	-	31	129	109	-	-
9	**0**	42	6	9141	7750	1466	5	3	885	785	1	558	3	190	0	135	4	529	5	376	9	6	2	923	782
							-	-			-		-						-		-	-	-		
0.2	0.2	128	1076			-	122	103	-	-	65	-	46		15		11	-	44	-	31	129	108	-	-
0	1	10	2	9072	7673	1462	8	6	876	783	7	554	9	189	9	134	3	527	3	373	6	3	6	916	775
0.2	0.2	127	1071			-	-	-	-	-	-	-	-		15		11	-	-	-	-	-	-	-	-
1	2	80	1	9008	7601	1459	122	102	868	781	65	550	46	189	8	133	2	526	44	371	31	129	108	909	767

							3	8			4		4						1		3	0	1		
							-	-			-		-						-		-	-	-		
0.22	**0.23**	127	10662	8947	7532	1455	121	102	860	779	65	547	46	188	15	132	11	525	43	368	31	128	107	903	760
		51					7	1		1	1		0	7	1		1	9	9		0	7	6		
							-	-			-		-						-		-	-	-		
0.23	0.24	127	10616	8889	7467	1452	121	101	852	777	64	543	45	188	15	131	11	524	43	366	30	128	107	897	754
		23					2	5		9	9		6	7	1		0	7	7		7	4	2		
							-	-			-		-						-		-	-	-		
0.24	0.25	126	10572	8834	7406	1449	120	100	845	776	64	540	45	187	15	130	10	523	43	364	30	128	106	892	748
		97					7	8		6	6		2	6	1		9	5	5		5	2	7		
							-	-			-		-						-		-	-	-		
0.25	**0.26**	126	10530	8781	7347	1446	120	100	839	774	64	536	44	187	15	130	10	522	43	361	30	127	106	886	742
		71					2	2		3	3		9	5	1		8	3	3		2	9	3		
							-	-			-		-						-		-	-	-		
0.26	0.27	126	10490	8731	7291	1444	119	-	832	773	64	533	44	187	15	129	10	521	43	359	30	127	105	881	736
		47					7	997		1	1		5	5	1		8	2	2		0	7	9		
							-				-		-						-		-	-	-		
0.27	0.28	126	10451	8683	7237	1441	119	-	826	771	63	530	44	186	15	128	10	520	43	357	29	127	105	876	731
		24					3	991		8	8		2	4	1		7	0	8		8	4	5		
							-				-		-						-		-	-	-		
0.28	**0.29**	126	10410	8636	7186	1438	118	-	820	770	63	528	43	186	15	128	10	519	42	356	29	127	105	872	725
		01	4				9	986		6	6		9	4	1		6	9	6		6	2	1		
							-				-		-						-		-	-	-		
0.29	0.30	125	10378	8592	7137	1436	118	-	815	768	63	525	43	186	15	127	10	518	42	354	29	127	104	867	720
		79					5	981		4	4		6	3	1		5	7	4		4	0	8		
							-				-		-						-		-	-	-		
	0.31	125	10345	8549	7089	1433	118	-	809	767	63	522	43	185	15	126	10	517	42	352	29	126	104	863	716
0.30		58	4				1	976		2	2		3	3	1		5	6	2		2	8	4		
							-				-		-						-		-	-	-		
0.31	**0.32**	125	10310	8508	7044	1431	117	-	804	766	63	520	43	185	15	126	10	516	42	350	29	126	104	859	711
		38	0				7	971		0	0		0	2	1		4	4	0		0	6	1		
							-				-		-						-		-	-	-		
0.32	0.33	125	10278	8468	7000	1429	117	-	799	765	62	517	42	185	15	125	10	515	42	349	28	126	103	855	707
		19	8				3	967		8	8		8	2	1		3	3	8		8	4	8		
							-				-		-						-		-	-	-		
0.33	0.34	125	10247	8430	6958	1427	117	-	794	764	62	515	42	185	15	124	10	515	42	347	28	126	103	851	702
		00	7				0	962		6	6		5	1	1		3	2	6		6	2	4		
							-				-		-						-		-	-	-		
0.34	**0.35**	124	10217	8393	6917	1425	116	-	790	763	62	513	42	184	15	124	10	514	42	345	28	126	103	847	698
		81	7				6	958		4	4		3	1	1		2	1	5		5	0	1		
							-				-		-						-		-	-	-		
0.35	0.36	124	10188	8357	6878	1423	116	-	785	761	62	511	42	184	15	123	10	513	41	344	28	125	102	844	694
		64	8				3	954		2	2		0	0	1		2	9	3		3	8	8		
							-				-		-						-		-	-	-		
0.36	0.37	124	10160	8323	6840	1421	116	-	781	760	62	508	41	184	15	123	10	512	41	343	28	125	102	840	690
		46	0				0	950		1	1		8	0	1		1	8	3		2	6	6		
							-				-		-						-		-	-	-		
0.37	**0.38**	124	10132	8289	6803	1419	115	-	777	759	61	506	41	184	15	122	10	512	41	341	28	125	102	837	687
		30	2				7	946		9	9		6	0	1		0	7	1		0	5	3		
0.38	0.39	124	10104	8256	6768	-	-	-	-	-	-	-	-	183	14	122	10	-	-	-	-	-	-	-	-

8	9	13	6			1417	115 4	942	772	758	61 7	504	41 3		9		0	511	41 6	340	27 9	125 3	102 0	833	683
0.3	0.4	123	1008			-	115	-	-	-	61	-	41		14			-	41	-	27	125	101	-	-
9	0	97	0	8225	6733	1415	1	939	769	757	6	502	1	183	9	121	99	510	5	339	7	1	8	830	680
	0.4	123	1005			-	114	-	-	-	61	-	40		14			-	41	-	27	125	101	-	-
0.4	**1**	82	5	8194	6700	1413	8	935	765	756	4	501	9	183	8	121	99	510	4	337	6	0	5	827	676
0.4	0.4	123	1003			-	114	-	-	-	61	-	40		14			-	41	-	27	124	101	-	-
1	2	67	0	8164	6667	1412	5	932	761	755	3	499	7	183	8	121	98	509	3	336	4	8	3	824	673
0.4	0.4	123	1000			-	114	-	-	-	61	-	40		14			-	41	-	27	124	101	-	-
2	3	52	7	8135	6635	1410	2	929	757	755	1	497	5	182	8	120	98	508	2	335	3	7	0	821	670
0.4	**0.4**	123				-	114	-	-	-	61	-	40		14			-	41	-	27	124	100	-	-
3	**4**	38	9983	8107	6605	1408	0	925	754	754	0	495	3	182	7	120	98	508	1	334	2	5	8	818	667
0.4	0.4	123				-	113	-	-	-	60	-	40		14			-	41	-	27	124	100	-	-
4	5	24	9961	8079	6575	1407	7	922	750	753	9	494	2	182	7	119	97	507	0	333	1	4	6	816	664
0.4	0.4	123				-	113	-	-	-	60	-	40		14			-	40	-	26	124	100	-	-
5	6	10	9939	8052	6546	1405	4	919	747	752	7	492	0	182	7	119	97	507	9	331	9	3	3	813	661
0.4	**0.4**	122				-	113	-	-	-	60	-	39		14			-	40	-	26	124	100	-	-
6	**7**	97	9917	8026	6517	1404	2	916	744	751	6	490	8	182	6	119	96	506	8	330	8	1	1	810	658
0.4	0.4	122				-	113	-	-	-	60	-	39		14			-	40	-	26	124	-	-	-
7	8	84	9896	8001	6490	1402	0	913	741	750	5	489	6	181	6	118	96	506	7	329	7	0	999	808	655
0.4	0.4	122				-	112	-	-	-	60	-	39		14			-	40	-	26	123	-	-	-
8	9	71	9875	7976	6463	1401	7	910	738	750	3	487	5	181	6	118	95	505	7	328	6	9	997	805	652
0.4	**0.5**	122				-	112	-	-	-	60	-	39		14			-	40	-	26	123	-	-	-
9	**0**	58	9855	7951	6437	1399	5	908	735	749	2	486	3	181	6	117	95	505	6	327	5	7	995	803	650
0.5	0.5	122				-	112	-	-	-	60	-	39		14			-	40	-	26	123	-	-	-
0	1	46	9836	7928	6411	1398	3	905	732	748	1	484	2	181	5	117	95	504	5	326	4	6	993	800	647
0.5	0.5	122				-	112	-	-	-	60	-	39		14			-	40	-	26	123	-	-	-
1	2	34	9816	7904	6386	1396	0	902	729	747	0	483	0	181	5	117	94	504	4	325	3	5	991	798	645
0.5	**0.5**	122				-	111	-	-	-	59	-	38		14			-	40	-	26	123	-	-	-
2	**3**	22	9798	7882	6361	1395	8	900	726	747	9	481	9	180	5	116	94	503	3	324	2	4	989	796	642
0.5	0.5	122				-	111	-	-	-	59	-	38		14			-	40	-	26	123	-	-	-
3	4	11	9779	7859	6338	1394	6	897	723	746	7	480	7	180	4	116	94	503	3	324	1	3	987	793	640
0.5	0.5	121				-	111	-	-	-	59	-	38		14			-	40	-	26	123	-	-	-
4	5	99	9761	7838	6314	1393	4	895	721	745	6	479	6	180	4	116	93	502	2	323	0	2	985	791	637

0.5	**0.5**	121				-	111	-	-	-	59	-	38		14			-	40	-	25	123	-	-	-
5	**6**	88	9743	7816	6291	1391	2	892	718	745	5	478	4	180	4	115	93	502	1	322	9	0	984	789	635
0.5	0.5	121				-	111	-	-	-	59	-	38		14			-	40	-	25	122	-	-	-
6	7	78	9726	7795	6269	1390	0	890	716	744	4	476	3	180	4	115	93	501	0	321	8	9	982	787	633
0.5	0.5	121				-	110	-	-	-	59	-	38		14			-	40	-	25	122	-	-	-
7	8	67	9709	7775	6247	1389	8	887	713	743	3	475	2	180	3	115	92	501	0	320	7	8	980	785	631
0.5	**0.5**	121				-	110	-	-	-	59	-	38		14			-	39	-	25	122	-	-	-
8	**9**	56	9692	7755	6226	1388	6	885	711	743	2	474	0	180	3	115	92	500	9	319	6	7	978	783	628
0.5		121				-	110	-	-	-	59	-	37		14			-	39	-	25	122	-	-	-
9	0.6	46	9676	7735	6204	1386	4	883	708	742	1	473	9	179	3	114	92	500	8	318	5	6	977	781	626
0.6	0.6	121				-	110	-	-	-	59	-	37		14			-	39	-	25	122	-	-	-
0	1	36	9660	7716	6184	1385	3	881	706	741	0	471	8	179	3	114	91	500	8	318	5	5	975	779	624
0.6	**0.6**	121				-	110	-	-	-	58	-	37		14			-	39	-	25	122	-	-	-
1	**2**	26	9644	7697	6164	1384	1	879	704	741	9	470	7	179	2	114	91	499	7	317	4	4	974	777	622
0.6	0.6	121				-	109	-	-	-	58	-	37		14			-	39	-	25	122	-	-	-
2	3	16	9628	7678	6144	1383	9	876	701	740	8	469	5	179	2	113	91	499	6	316	3	3	972	775	620
0.6	0.6	121				-	109	-	-	-	58	-	37		14			-	39	-	25	122	-	-	-
3	4	07	9613	7660	6124	1382	7	874	699	740	7	468	4	179	2	113	90	498	6	315	2	2	970	773	618
0.6	**0.6**	120				-	109	-	-	-	58	-	37		14			-	39	-	25	122	-	-	-
4	**5**	97	9598	7642	6105	1381	6	872	697	739	6	467	3	179	2	113	90	498	5	315	1	1	969	771	616
0.6	0.6	120				-	109	-	-	-	58	-	37		14			-	39	-	25	122	-	-	-
5	6	88	9583	7625	6087	1380	4	870	695	738	5	466	2	178	2	113	90	498	4	314	1	0	967	770	614
0.6	0.6	120				-	109	-	-	-	58	-	37		14			-	39	-	25	121	-	-	-
6	7	79	9569	7607	6068	1379	2	868	693	738	5	465	1	178	1	112	90	497	4	313	0	9	966	768	613
0.6	**0.6**	120				-	109	-	-	-	58	-	37		14			-	39	-	24	121	-	-	-
7	**8**	70	9555	7590	6050	1378	1	866	691	737	4	464	0	178	1	112	89	497	3	312	9	8	965	766	611
0.6	0.6	120				-	108	-	-	-	58	-	36		14			-	39	-	24	121	-	-	-
8	9	61	9541	7574	6032	1377	9	865	689	737	3	463	9	178	1	112	89	496	3	312	8	8	963	765	609
0.6	0.7	120				-	108	-	-	-	58	-	36		14			-	39	-	24	121	-	-	-
9	0	52	9527	7557	6015	1376	7	863	687	736	2	462	7	178	1	112	89	496	2	311	8	7	962	763	607
0.7	**0.7**	120				-	108	-	-	-	58	-	36		14			-	39	-	24	121	-	-	-
0	**1**	44	9513	7541	5998	1375	6	861	685	736	1	461	6	178	0	111	89	496	2	310	7	6	960	761	605
0.7	0.7	120				-	-	-	-	-	-	-	-		14			-	-	-	-	-	-	-	-
1	2	35	9500	7525	5981	1374	108	859	683	735	58	460	36	178	0	111	88	495	39	310	24	121	959	760	604

							4				0		5						1		6	5			
							-				-		-						-		-	-			
0.7	0.7	120				-	108	-	-	-	58	-	36		14			-	39	-	24	121	-	-	-
2	3	27	9487	7510	5964	1373	3	857	681	735	0	459	4	178	0	111	88	495	0	309	6	4	958	758	602
							-				-		-						-		-	-			
0.7	**0.7**	120				-	108	-	-	-	57	-	36		14			-	39	-	24	121	-	-	-
3	**4**	18	9474	7494	5948	1372	1	855	679	734	9	458	3	177	0	111	88	495	0	308	5	3	956	757	600
							-				-		-						-		-	-			
0.7	0.7	120				-	108	-	-	-	57	-	36		14			-	38	-	24	121	-	-	-
4	5	10	9461	7479	5932	1371	0	854	677	734	8	457	2	177	0	110	88	494	9	308	4	2	955	755	599
							-				-		-						-		-	-			
0.7	0.7	120				-	107	-	-	-	57	-	36		14			-	38	-	24	121	-	-	-
5	6	02	9448	7464	5916	1370	8	852	675	733	7	456	1	177	0	110	87	494	9	307	4	2	954	753	597
							-				-		-						-		-	-			
0.7	**0.7**	119				-	107	-	-	-	57	-	36		13			-	38	-	24	121	-	-	-
6	**7**	94	9436	7449	5901	1369	7	850	674	733	6	455	0	177	9	110	87	494	8	307	3	1	953	752	596
							-				-		-						-		-	-			
0.7	0.7	119				-	107	-	-	-	57	-	36		13			-	38	-	24	121	-	-	-
7	8	87	9424	7435	5885	1368	6	849	672	732	6	454	0	177	9	110	87	493	8	306	2	0	951	751	594
							-				-		-						-		-	-			
0.7	0.7	119				-	107	-	-	-	57	-	35		13			-	38	-	24	120	-	-	-
8	9	79	9412	7421	5870	1367	4	847	670	732	5	453	9	177	9	110	87	493	7	305	2	9	950	749	593
							-				-		-						-		-	-			
0.7	**0.8**	119				-	107	-	-	-	57	-	35		13			-	38	-	24	120	-	-	-
9	**0**	71	9400	7407	5856	1366	3	845	668	731	4	452	8	177	9	109	86	493	7	305	1	8	949	748	591
							-				-		-						-		-	-			
0.8	0.8	119				-	107	-	-	-	57	-	35		13			-	38	-	24	120	-	-	-
0	1	64	9388	7393	5841	1366	2	844	667	731	4	452	7	177	9	109	86	492	6	304	0	8	948	746	590
							-				-		-						-		-	-			
0.8	0.8	119				-	107	-	-	-	57	-	35		13			-	38	-	24	120	-	-	-
1	2	57	9376	7379	5827	1365	0	842	665	730	3	451	6	177	8	109	86	492	6	304	0	7	947	745	588
							-				-		-						-		-	-			
0.8	**0.8**	119				-	106	-	-	-	57	-	35		13			-	38	-	23	120	-	-	-
2	**3**	49	9365	7366	5812	1364	9	841	663	730	2	450	5	176	8	109	86	492	5	303	9	6	945	744	587
							-				-		-						-		-	-			
0.8	0.8	119				-	106	-	-	-	57	-	35		13			-	38	-	23	120	-	-	-
3	4	42	9354	7352	5798	1363	8	839	662	730	1	449	4	176	8	109	86	492	5	303	9	6	944	742	585
							-				-		-						-		-	-			
0.8	0.8	119				-	106	-	-	-	57	-	35		13			-	38	-	23	120	-	-	-
4	5	35	9342	7339	5785	1362	6	838	660	729	1	448	3	176	8	108	85	491	5	302	8	5	943	741	584
							-				-		-						-		-	-			
0.8	**0.8**	119				-	106	-	-	-	57	-	35		13			-	38	-	23	120	-	-	-
5	**6**	28	9332	7326	5771	1362	5	836	659	729	0	448	3	176	8	108	85	491	4	302	8	4	942	740	583
							-				-		-						-		-	-			
0.8	0.8	119				-	106	-	-	-	56	-	35		13			-	38	-	23	120	-	-	-
6	7	21	9321	7313	5758	1361	4	835	657	728	9	447	2	176	8	108	85	491	4	301	7	3	941	738	581
							-				-		-						-		-	-			
0.8	0.8	119				-	106	-	-	-	56	-	35		13			-	38	-	23	120	-	-	-
7	8	14	9310	7301	5745	1360	3	833	656	728	9	446	1	176	7	108	85	490	3	301	6	3	940	737	580
0.8	**0.8**	119	9299	7288	5732	-	-	-	-	-	-	-	-	176	13	108	85	-	-	-	-	-	-	-	-

8	**9**	07				1359	106 1 -	832	654	727	56 8 -	445	35 0 -		7			490	38 3 -	300	23 6 -	120 2 -	939	736	579
0.8		119				-	106	-	-	-	56	-	34		13			-	38	-	23	120	-	-	-
9	0.9	01	9289	7276	5719	1358	0 -	831	653	727	7 -	445	9 -	176	7	107	84	490	2 -	300	5 -	1 -	938	735	577
	0.9	118				-	105	-	-	-	56	-	34		13			-	38	-	23	120	-	-	-
0.9	1	94	9279	7264	5706	1358	9 -	829	651	727	7 -	444	9 -	176	7	107	84	490	2 -	299	5 -	1 -	937	733	576
0.9	**0.9**	118				-	105	-	-	-	56	-	34		13			-	38	-	23	120	-	-	-
1	**2**	88	9268	7252	5693	1357	8 -	828	650	726	6 -	443	8 -	176	7	107	84	489	2 -	299	4 -	0 -	936	732	575
0.9	0.9	118				-	105	-	-	-	56	-	34		13			-	38	-	23	119	-	-	-
2	3	81	9258	7240	5681	1356	7 -	826	648	726	6 -	442	7 -	175	7	107	84	489	1 -	298	4 -	9 -	935	731	573
0.9	0.9	118				-	105	-	-	-	56	-	34		13			-	38	-	23	119	-	-	-
3	4	75	9248	7229	5669	1355	6 -	825	647	725	5 -	442	6 -	175	7	107	84	489	1 -	298	3 -	9 -	934	730	572
0.9	**0.9**	118				-	105	-	-	-	56	-	34		13			-	38	-	23	119	-	-	-
4	**5**	68	9239	7217	5657	1355	5 -	824	646	725	4 -	441	6 -	175	6	107	84	489	0 -	297	3 -	8 -	933	729	571
0.9	0.9	118				-	105	-	-	-	56	-	34		13			-	38	-	23	119	-	-	-
5	6	62	9229	7206	5645	1354	3 -	823	644	725	4 -	440	5 -	175	6	106	83	488	0 -	297	2 -	7 -	932	727	570
0.9	0.9	118				-	105	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
6	7	56	9219	7195	5633	1353	2 -	821	643	724	3 -	440	4 -	175	6	106	83	488	9 -	296	2 -	7 -	931	726	569
0.9	**0.9**	118				-	105	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
7	**8**	50	9210	7183	5622	1353	1 -	820	642	724	3 -	439	3 -	175	6	106	83	488	9 -	296	1 -	6 -	930	725	567
0.9	0.9	118				-	105	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
8	9	44	9200	7172	5610	1352	0 -	819	640	724	2 -	438	3 -	175	6	106	83	488	9 -	295	1 -	6 -	929	724	566
0.9	1.0	118				-	104	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
9	0	38	9191	7162	5599	1351	9 -	817	639	723	1 -	438	2 -	175	6	106	83	487	8 -	295	0 -	5 -	928	723	565
	1.0	118				-	104	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
1	**1**	32	9182	7151	5588	1351	8 -	816	638	723	1 -	437	1 -	175	6	106	83	487	8 -	294	0 -	4 -	927	722	564
1.0	1.0	118				-	104	-	-	-	56	-	34		13			-	37	-	23	119	-	-	-
1	2	26	9173	7140	5577	1350	7 -	815	637	722	0 -	436	1 -	175	5	105	82	487	8 -	294	0 -	4 -	926	721	563
1.0	1.0	118				-	104	-	-	-	56	-	34		13			-	37	-	22	119	-	-	-
2	3	20	9164	7130	5566	1349	6 -	814	635	722	0 -	436	0 -	175	5	105	82	487	7 -	293	9 -	3 -	925	720	562
1.0	**1.0**	118				-	104	-	-	-	55	-	33		13			-	37	-	22	119	-	-	-
3	**4**	15	9155	7119	5555	1349	5 -	813	634	722	9 -	435	9 -	174	5	105	82	486	7 -	293	9 -	3 -	924	719	561
1.0	1.0	118				-	104	-	-	-	55	-	33		13			-	37	-	22	119	-	-	-
4	5	09	9146	7109	5544	1348	4	811	633	721	9	434	9	174	5	105	82	486	6	293	8	2	923	718	560

1.05	1.06	11803	9138	7099	5534	-1347	-1043	-810	-632	-721	-558	-434	-338	174	135	105	82	-486	-376	-292	-228	11922	9228	7175	5592
1.06	**1.07**	11798	9129	7089	5523	-1347	-1042	-809	-630	-721	-558	-433	-337	174	135	105	82	-486	-376	-292	-227	11921	9221	7167	5581
1.07	1.08	11792	9120	7079	5513	-1346	-1041	-808	-629	-720	-557	-432	-337	174	135	105	81	-485	-375	-291	-227	11907	9210	7157	5570
1.08	1.09	11787	9112	7069	5503	-1345	-1040	-807	-628	-720	-557	-432	-336	174	135	104	81	-485	-375	-291	-226	11900	9204	7147	5560
1.09	**1.10**	11781	9104	7060	5493	-1345	-1039	-806	-627	-720	-556	-431	-336	174	134	104	81	-485	-374	-291	-226	11899	9193	7139	5548
1.10	1.11	11776	9095	7050	5483	-1344	-1038	-805	-626	-719	-556	-431	-335	174	134	104	81	-485	-374	-290	-226	11893	9189	7126	5534
1.11	1.12	11771	9087	7040	5473	-1344	-1037	-804	-625	-719	-555	-430	-335	174	134	104	81	-485	-374	-290	-225	11888	9179	7116	5523
1.12	**1.13**	11765	9079	7031	5463	-1343	-1036	-803	-624	-719	-555	-430	-334	174	134	104	81	-484	-374	-289	-225	11882	9179	7108	5514
1.13	1.14	11760	9071	7022	5454	-1342	-1035	-801	-623	-718	-554	-429	-334	174	134	104	81	-484	-373	-289	-225	11882	9169	7097	5506
1.14	1.15	11754	9063	7012	5444	-1342	-1035	-800	-621	-718	-554	-428	-333	174	134	104	80	-484	-373	-289	-224	11882	9169	7097	5506
1.15	**1.16**	11749	9055	7003	5435	-1341	-1034	-799	-620	-718	-553	-428	-333	174	134	103	80	-484	-373	-288	-224	11882	9169	7097	5506
1.16	1.17	11743	9047	6994	5425	-1341	-1033	-798	-619	-718	-553	-427	-332	173	134	103	80	-483	-372	-288	-224	11882	9169	7097	5506
1.17	1.18	11738	9040	6985	5416	-1340	-1032	-797	-618	-717	-552	-427	-332	173	133	103	80	-483	-372	-288	-223	11882	9169	7097	5506
1.18	**1.19**	11732	9032	6976	5407	-1339	-1031	-796	-617	-717	-552	-426	-331	173	133	103	80	-483	-372	-287	-223	11882	9169	7097	5506
1.19	1.20	11727	9024	6968	5398	-1339	-1030	-795	-616	-717	-551	-426	-331	173	133	103	80	-483	-371	-287	-222	11882	9169	7097	5506
1.20	1.21	11721	9017	6959	5389	-1338	-1029	-794	-615	-716	-551	-425	-330	173	133	103	80	-483	-371	-286	-222	11882	9169	7097	5506
1.21	**1.22**	11716	9009	6950	5380	-1338	-1028	-793	-614	-716	-550	-425	-329	173	133	103	79	-482	-370	-286	-221	11882	9169	7097	5506

							8				0		9						1		1	3			
							-				-		-						-		-	-			
1.2	1.2	117				-	102	-	-	-	55	-	32		13			-	37	-	22	118	-	-	-
2	3	15	9002	6942	5371	1337	8	792	613	716	0	424	8	173	3	103	79	482	1	286	1	3	909	701	542
							-				-		-						-		-	-			
1.2	1.2	117				-	102	-	-	-	55	-	32		13			-	37	-	22	118	-	-	-
3	4	11	8995	6933	5362	1337	7	791	612	715	0	424	8	173	3	102	79	482	0	285	1	2	908	700	541
							-				-		-						-		-	-			
1.2	**1.2**	117				-	102	-	-	-	54	-	32		13			-	37	-	22	118	-	-	-
4	**5**	06	8988	6925	5354	1336	6	790	611	715	9	423	7	173	3	102	79	482	0	285	0	2	907	699	540
							-				-		-						-		-	-			
1.2	1.2	117				-	102	-	-	-	54	-	32		13			-	37	-	22	118	-	-	-
5	6	01	8980	6917	5345	1336	5	790	610	715	9	423	7	173	3	102	79	482	0	285	0	1	907	698	540
							-				-		-						-		-	-			
1.2	1.2	116				-	102	-	-	-	54	-	32		13			-	36	-	22	118	-	-	-
6	7	97	8973	6908	5337	1335	4	789	609	715	8	422	6	173	3	102	79	481	9	284	0	1	906	697	539
							-				-		-						-		-	-			
1.2	**1.2**	116				-	102	-	-	-	54	-	32		13			-	36	-	21	118	-	-	-
7	**8**	92	8966	6900	5328	1335	3	788	608	714	8	422	6	173	2	102	79	481	9	284	9	0	905	697	538
							-				-		-						-		-	-			
1.2	1.2	116				-	102	-	-	-	54	-	32		13			-	36	-	21	118	-	-	-
8	9	88	8959	6892	5320	1334	3	787	607	714	7	421	5	173	2	102	79	481	9	284	9	0	904	696	537
							-				-		-						-		-	-			
1.2	1.3	116				-	102	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
9	0	83	8952	6884	5312	1334	2	786	606	714	7	421	4	173	2	102	78	481	8	283	9	9	904	695	536
							-				-		-						-		-	-			
1.3	**1.3**	116				-	102	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
0	**1**	78	8945	6876	5304	1333	1	785	605	713	6	420	4	172	2	102	78	481	8	283	8	9	903	694	535
							-				-		-						-		-	-			
1.3	1.3	116				-	102	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
1	2	74	8939	6868	5295	1333	0	784	604	713	6	420	4	172	2	101	78	481	8	283	8	8	902	693	535
							-				-		-						-		-	-			
1.3	1.3	116				-	102	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
2	3	70	8932	6861	5287	1332	0	783	604	713	6	419	3	172	2	101	78	480	8	282	8	8	902	693	534
							-				-		-						-		-	-			
1.3	**1.3**	116				-	101	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
3	**4**	65	8925	6853	5280	1332	9	782	603	713	5	419	3	172	2	101	78	480	7	282	7	8	901	692	533
							-				-		-						-		-	-			
1.3	1.3	116				-	101	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
4	5	61	8918	6845	5272	1331	8	781	602	712	5	418	2	172	2	101	78	480	7	282	7	7	900	691	532
							-				-		-						-		-	-			
1.3	1.3	116				-	101	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
5	6	57	8912	6838	5264	1331	7	780	601	712	4	418	2	172	2	101	78	480	7	281	7	7	900	690	531
							-				-		-						-		-	-			
1.3	**1.3**	116				-	101	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
6	**7**	52	8905	6830	5256	1330	6	780	600	712	4	417	1	172	1	101	78	480	7	281	6	6	899	689	531
							-				-		-						-		-	-			
1.3	1.3	116				-	101	-	-	-	54	-	32		13			-	36	-	21	117	-	-	-
7	8	48	8899	6823	5248	1330	6	779	599	712	4	417	1	172	1	101	78	479	6	281	6	6	898	689	530
1.3	1.3	116	8892	6815	5241	-	-	-	-	-	-	-	-	172	13	101	77	-	-	-	-	-	-	-	-

8	9	44				1329	101 5	778	598	711	54 3	416	32 0		1			479	36 6	281	21 6	117 5	898	688	529
1.3 9	**1.4** **0**	116 40	8886	6808	5233	- 1329	101 4	- 777	- 597	- 711	54 3	- 416	32 0	172	13 1	101	77	- 479	36 6	- 280	21 5	117 5	- 897	- 687	- 528
1.4 **0**	1.4 1	116 35	8880	6801	5226	- 1328	101 4	- 776	- 597	- 711	54 2	- 415	31 9	172	13 1	100	77	- 479	36 6	- 280	21 5	117 5	- 896	- 687	- 528
1.4 1	1.4 2	116 31	8873	6793	5218	- 1328	101 3	- 775	- 596	- 711	54 2	- 415	31 9	172	13 1	100	77	- 479	36 5	- 280	21 5	117 4	- 896	- 686	- 527
1.4 2	**1.4** **3**	116 27	8867	6786	5211	- 1327	101 2	- 775	- 595	- 710	54 2	- 415	31 8	172	13 1	100	77	- 479	36 5	- 279	21 5	117 4	- 895	- 685	- 526
1.4 **3**	1.4 4	116 23	8861	6779	5204	- 1327	101 1	- 774	- 594	- 710	54 1	- 414	31 8	172	13 1	100	77	- 478	36 5	- 279	21 4	117 3	- 894	- 684	- 525
1.4 4	1.4 5	116 19	8855	6772	5197	- 1326	101 1	- 773	- 593	- 710	54 1	- 414	31 7	172	13 1	100	77	- 478	36 4	- 279	21 4	117 3	- 894	- 684	- 525
1.4 5	**1.4** **6**	116 15	8849	6765	5189	- 1326	101 0	- 772	- 592	- 710	54 1	- 413	31 7	172	13 1	100	77	- 478	36 4	- 278	21 4	117 3	- 893	- 683	- 524
1.4 **6**	1.4 7	116 11	8843	6758	5182	- 1325	100 9	- 771	- 592	- 709	54 0	- 413	31 7	171	13 1	100	77	- 478	36 4	- 278	21 3	117 2	- 893	- 682	- 523
1.4 7	1.4 8	116 07	8836	6751	5175	- 1325	100 9	- 771	- 591	- 709	54 0	- 412	31 6	171	13 0	100	76	- 478	36 4	- 278	21 3	117 2	- 892	- 682	- 522
1.4 8	**1.4** **9**	116 03	8831	6744	5168	- 1324	100 8	- 770	- 590	- 709	53 9	- 412	31 6	171	13 0	100	76	- 478	36 3	- 278	21 3	117 1	- 891	- 681	- 522
1.4 **9**	**1.5**	**115** **99**	**8825**	**6738**	**5161**	**-** **1324**	**100** **7**	**-** **769**	**-** **589**	**-** **709**	**53** **9**	**-** **412**	**31** **5**	**171**	**13** **0**	**99**	**76**	**-** **477**	**36** **3**	**-** **277**	**21** **2**	**117** **1**	**-** **891**	**-** **680**	**-** **521**

I93N (North of Boston) -- Congestion

		ND (1)				**ND (2)**				**ND (3)**				**ND (4)**				**ND (5)**				**ND (6)**			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**0.1**	**0.15**	**0.2**	**-0.05**	**0.1**	**0.15**	**0.2**	**-0.05**	**0.1**	**0.15**	**0.2**	**-0.05**	**0.1**	**0.15**	**0.2**	**-0.05**	**-0.1**	**0.15**	**-0.2**
0.0 0	0.0 1	717 1	7171	7171	7171	2507	25 07	250 7	25 07	247	24 7	247	24 7	133 9	13 39	133 9	13 39	154 1	15 41	154 1	15 41	262 3	262 3	262 3	262 3
0.0 **1**	**0.0** **2**	683 0	6519	6236	5976	2388	22 79	218 0	20 89	235	22 5	215	20 6	127 5	12 17	116 4	11 16	146 8	14 01	134 0	12 84	249 8	238 5	228 1	218 6
0.0	0.0	666	6209	5801	5433	2329	21	202	18	230	21	200	18	124	11	108	10	143	13	124	11	-	-	-	-

2	3	3					71	8	99		4		7	4	59	3	14	2	34	7	67	243	227	212	198
																						7	1	2	7
																						-	-	-	-
0.0	**0.0**	655					21	193	17		20		17	122	11	103	95	140	12	118	10	239	219	202	186
3	**4**	4	6008	5524	5093	2291	01	1	81	226	7	190	5	4	22	2	1	8	91	7	94	7	8	1	3
																						-	-	-	-
0.0	0.0	647					20	186	16		20		16	120	10		90	139	12	114	10	236	214	194	177
4	5	3	5862	5325	4851	2263	49	2	96	223	2	183	7	9	95	994	6	1	60	4	42	8	4	8	4
																						-	-	-	-
0.0	**0.0**	640					20	180	16		19		16	119	10		87	137	12	111	10	234	210	189	170
5	**6**	9	5747	5170	4664	2241	09	7	31	221	8	178	1	7	73	965	1	7	35	1	02	4	2	1	6
																						-	-	-	-
0.0	0.0	635					19	176	15		19		15	118	10		84	136	12	108	97	232	206	184	165
6	7	6	5653	5044	4514	2222	76	3	78	219	5	174	5	7	55	942	3	6	15	4	0	5	8	5	1
																						-	-	-	-
0.0	**0.0**	631					19	172	15		19		15	117	10		81	135	11	106	94	230	203	180	160
7	**8**	1	5573	4938	4388	2206	48	6	34	217	2	170	1	8	41	922	9	6	98	1	3	8	9	6	5
																						-	-	-	-
0.0	0.0	627					19	169	14		19		14	117	10		79	134	11	104	92	229	201	177	156
8	9	1	5504	4847	4281	2193	24	4	97	216	0	167	7	1	28	905	9	8	83	2	0	4	3	3	6
																						-	-	-	-
0.0	**0.1**	623					19	166	14		18		14	116	10		78	134	11	102	90	228	199	174	153
9	**0**	7	5444	4767	4188	2180	03	7	64	215	8	164	4	5	16	890	2	0	70	4	0	1	1	4	2
																						-	-	-	-
0.1	0.1	620					18	164	14		18		14	115	10		76	133	11	100	88	227	197	171	150
0	1	6	5390	4697	4106	2170	84	2	35	214	6	162	1	9	06	877	7	4	58	9	2	0	2	8	2
																						-	-	-	-
0.1	**0.1**	617					18	162	14		18		13	115	99		75	132	11		86	226	195	169	147
1	**2**	8	5341	4634	4033	2160	67	0	10	213	4	160	9	4	7	865	3	8	48	996	7	0	4	5	5
																						-	-	-	-
0.1	0.1	615					18	160	13		18		13	114	98		74	132	11		85	225	193	167	145
2	3	2	5297	4577	3966	2151	52	0	87	212	2	158	7	9	9	855	1	2	38	983	2	0	8	4	1
																						-	-	-	-
0.1	**0.1**	612					18	158	13		18		13	114	98		72	131	11		83	224	192	165	142
3	**4**	9	5257	4524	3906	2143	38	2	66	211	1	156	5	4	2	845	9	7	30	972	9	2	3	5	9
																						-	-	-	-
0.1	0.1	610					18	156	13		18		13	114	97		71	131	11		82	223	190	163	140
4	5	7	5219	4476	3851	2135	25	5	46	210	0	154	3	0	5	836	9	2	22	962	8	4	9	7	9
																						-	-	-	-
0.1	**0.1**	608					18	154	13		17		13	113	96		71	130	11		81	222	189	162	139
5	**6**	6	5185	4432	3801	2128	13	9	29	210	9	153	1	6	8	828	0	8	14	952	7	6	7	1	0
																						-	-	-	-
0.1	0.1	606					18	153	13		17		12	113	96		70	130	11		80	221	188	160	137
6	7	7	5153	4391	3754	2121	01	5	12	209	7	151	9	3	2	820	1	4	07	944	7	9	5	6	3
																						-	-	-	-
0.1	**0.1**	605					17	152	12		17		12	113	95		69	130	11		79	221	187	159	135
7	**8**	0	5123	4352	3710	2115	91	2	97	208	6	150	8	0	7	813	3	0	01	935	7	3	4	2	7
																						-	-	-	-
0.1	0.1	603					17	150	12		17		12	112	95		68	129	10		78	220	186	157	134
8	9	3	5094	4317	3669	2109	81	9	83	208	5	149	6	6	1	806	5	6	95	928	9	7	3	9	2

0.19	**0.20**	6017	5068	4283	3631	2104	1772	149	1269	207	5	148	125	112	946	800	678	129	103	892	780	-2201	-1854	-1567	-1328
0.20	0.21	6002	5042	4251	3595	2098	1763	146	1257	207	4	146	124	111	942	794	671	129	100	891	773	-2195	-1844	-1555	-1315
0.21	**0.22**	5988	5018	4221	3561	2093	1754	147	1245	206	3	145	123	111	937	788	665	128	107	890	765	-2190	-1836	-1543	-1303
0.22	0.23	5974	4996	4192	3529	2089	1747	146	1234	206	2	144	122	111	936	783	659	128	104	889	758	-2185	-1827	-1531	-1291
0.23	**0.24**	5961	4974	4165	3499	2084	1739	145	1223	205	1	143	121	111	929	778	653	128	101	895	752	-2181	-1819	-1519	-1280
0.24	0.25	5949	4954	4139	3470	2080	1732	144	1213	205	1	143	120	111	925	773	648	127	098	864	746	-2176	-1812	-1514	-1269
0.25	**0.26**	5937	4934	4114	3442	2076	1725	143	1203	204	0	142	119	110	921	768	643	127	096	860	740	-2172	-1805	-1502	-1259
0.26	0.27	5926	4915	4091	3416	2072	1718	143	1194	204	9	141	118	110	918	764	638	127	093	856	734	-2167	-1798	-1496	-1250
0.27	**0.28**	5915	4897	4068	3391	2068	1712	142	1185	204	9	140	117	110	914	760	633	127	091	852	729	-2163	-1791	-1490	-1240
0.28	0.29	5904	4879	4046	3367	2064	1706	141	1177	203	8	139	116	110	912	756	629	126	099	849	724	-2160	-1785	-1485	-1232
0.29	**0.30**	5894	4863	4026	3344	2061	1700	140	1169	203	7	139	115	110	908	752	624	126	097	845	719	-2156	-1779	-1479	-1223
0.30	0.31	5884	4846	4006	3322	2057	1694	140	1161	203	7	138	114	109	905	748	620	126	094	841	714	-2152	-1773	-1474	-1215
0.31	**0.32**	5875	4831	3986	3300	2054	1689	139	1154	202	6	137	114	109	902	744	616	126	092	838	709	-2149	-1767	-1469	-1207
0.32	0.33	5866	4816	3968	3280	2051	1684	138	1147	202	6	137	113	109	895	741	612	126	090	835	705	-2145	-1761	-1464	-1200
0.33	**0.34**	5857	4801	3950	3260	2047	1679	138	1140	202	5	136	112	109	897	738	609	125	099	832	701	-2141	-1755	-1459	-1192
0.34	0.35	5848	4787	3932	3241	2044	1674	137	1133	201	5	135	112	109	892	734	605	125	097	829	696	-2138	-1749	-1454	-1186
0.35	**0.36**	5840	4773	3916	3223	2042	1669	136	1127	201	4	135	111	109	890	731	602	125	095	826	693	-2134	-1744	-1450	-1180

																								6	6	2	9
																								-	-	-	-
0.3	0.3	583					16	136	11		16		11	108	88		59	125	10		68	213	174	142	117
6	7	2	4760	3899	3205	2039	64	3	20	201	4	134	0	9	9	728	8	3	23	838	9	3	1	6	2
																						-	-	-	-
0.3	**0.3**	582					16	135	11		16		11	108	88		59	125	10		68	213	173	142	116
7	**8**	4	4747	3884	3188	2036	60	8	14	201	4	134	0	7	6	725	5	1	20	835	5	0	7	1	6
																						-	-	-	-
0.3	0.3	581					16	135	11		16		10	108	88		59	125	10		68	212	173	141	116
8	9	6	4735	3868	3171	2033	55	2	09	200	3	133	9	6	4	722	2	0	18	831	1	7	2	5	0
																						-	-	-	-
0.3	**0.4**	580					16	134	11		16		10	108	88		58	124	10		67	212	172	141	115
9	**0**	9	4723	3854	3155	2031	51	7	03	200	3	133	9	5	2	720	9	8	15	828	8	5	8	0	4
																						-	-	-	-
0.4	0.4	580					16	134	10		16		10	108	88		58	124	10		67	212	172	140	114
0	1	1	4711	3839	3139	2028	47	2	97	200	2	132	8	3	0	717	6	7	12	825	5	2	3	4	8
																						-	-	-	-
0.4	**0.4**	579					16	133	10		16		10	108	87		58	124	10		67	211	171	139	114
1	**2**	4	4700	3825	3124	2026	43	7	92	200	2	132	8	2	8	714	3	5	10	822	1	9	9	9	3
																						-	-	-	-
0.4	0.4	578					16	133	10		16		10	108	87		58	124	10		66	211	171	139	113
2	3	7	4688	3812	3109	2023	39	3	87	199	1	131	7	1	5	712	1	4	08	819	8	7	5	4	7
																						-	-	-	-
0.4	**0.4**	578					16	132	10		16		10	107	87		57	124	10		66	211	171	138	113
3	**4**	1	4678	3798	3095	2021	35	8	82	199	1	131	7	9	3	709	8	2	05	816	5	4	1	9	2
																						-	-	-	-
0.4	0.4	577					16	132	10		16		10	107	87		57	124	10		66	211	170	138	112
4	5	4	4667	3785	3081	2019	32	3	77	199	1	130	6	8	1	707	5	1	03	813	2	2	7	5	7
																						-	-	-	-
0.4	**0.4**	576					16	131	10		16		10	107	87		57	123	10		65	211	170	138	112
5	**6**	8	4657	3773	3067	2016	28	9	72	199	0	130	6	7	0	704	3	9	01	811	9	0	3	0	2
																						-	-	-	-
0.4	0.4	576					16	131	10		16		10	107	86		57	123	99		65	210	170	137	111
6	7	1	4647	3761	3054	2014	24	5	68	198	0	130	5	6	8	702	0	8	9	808	6	7	0	6	7
																						-	-	-	-
0.4	**0.4**	575					16	131	10		16		10	107	86		56	123	99		65	210	169	137	111
7	**8**	5	4637	3749	3041	2012	21	1	63	198	0	129	5	5	6	700	8	7	6	806	3	5	6	1	2
																						-	-	-	-
0.4	0.4	574					16	130	10		15		10	107	86		56	123	99		65	210	169	136	110
8	9	9	4627	3737	3028	2010	18	6	59	198	9	129	4	4	4	698	5	5	4	803	1	3	2	7	8
																						-	-	-	-
0.4	**0.5**	574					16	130	10		15		10	107	86		56	123	99		64	210	168	136	110
9	**0**	3	4618	3726	3016	2008	14	2	54	198	9	128	4	2	2	696	3	4	2	801	8	1	9	3	3
																						-	-	-	-
0.5	0.5	573					16	129	10		15		10	107	86		56	123	99		64	209	168	135	109
0	1	8	4608	3714	3004	2006	11	9	50	198	9	128	3	1	0	694	1	3	0	798	5	9	6	9	9
																						-	-	-	-
0.5	**0.5**	573					16	129	10		15		10	107	85		55	123	98		64	209	168	135	109
1	**2**	2	4599	3704	2992	2004	08	5	46	197	8	128	3	0	9	692	9	2	8	796	3	7	2	5	4
0.5	0.5	572	4591	3693	2981	2002	16	129	10	197	15	127	10	106	85	690	55	123	98	794	64	-	-	-	-

2	3	7					05	1	42		8		3	9	7		7	1	6		1	2095	1679	1351	1090
0.53	**0.54**	5721	4582	3682	2969	2000	1602	7	38	197	8	127	2	8	6	688	4	9	5	791	8	2093	1676	1347	1086
0.54	0.55	5716	4573	3672	2958	1998	1599	4	34	197	8	126	2	7	4	686	2	8	3	789	6	2091	1673	1343	1082
0.55	**0.56**	5711	4565	3662	2948	1996	1596	0	31	197	7	126	2	6	2	684	0	7	1	787	3	2089	1670	1340	1078
0.56	0.57	5706	4557	3652	2937	1995	1593	7	27	197	7	126	1	5	1	682	8	6	9	785	1	2087	1667	1336	1074
0.57	**0.58**	5701	4549	3643	2927	1993	1590	4	23	196	7	125	1	4	9	680	7	5	8	783	9	2085	1664	1332	1071
0.58	0.59	5696	4541	3633	2917	1991	1588	0	20	196	6	125	0	4	8	678	5	4	6	781	7	2083	1661	1329	1067
0.59	**0.60**	5691	4533	3624	2907	1990	1585	7	16	196	6	125	0	3	7	677	3	3	4	779	5	2082	1658	1326	1063
0.60	0.61	5686	4526	3615	2897	1988	1582	4	13	196	6	125	0	2	5	675	1	2	3	777	3	2080	1655	1325	1060
0.61	**0.62**	5682	4519	3606	2888	1986	1580	1	10	196	6	124	99	1	4	673	9	1	1	775	1	2078	1653	1319	1056
0.62	0.63	5677	4511	3598	2879	1985	1577	8	06	196	5	124	99	0	2	672	8	0	9	773	9	2077	1650	1316	1053
0.63	**0.64**	5672	4504	3589	2870	1983	1575	5	03	195	5	124	99	9	1	670	6	9	8	771	7	2075	1648	1313	1050
0.64	0.65	5668	4497	3581	2861	1982	1572	2	00	195	5	123	99	8	0	669	4	8	6	769	5	2073	1645	1310	1046
0.65	**0.66**	5664	4490	3572	2852	1980	1570	9	7	195	5	123	98	8	8	667	3	7	5	768	3	2072	1642	1307	1043
0.66	0.67	5659	4483	3564	2843	1979	1567	6	4	195	4	123	98	7	7	666	1	6	3	766	1	2070	1639	1304	1040
0.67	**0.68**	5655	4477	3556	2835	1977	1565	3	1	195	4	122	98	6	6	664	9	5	2	764	9	2069	1637	1301	1037
0.68	0.69	5651	4470	3549	2826	1976	1563	1	8	195	4	122	97	5	5	663	8	4	1	763	7	2067	1635	1298	1034

0.6	**0.7**	564					15	123	98		15			105	83		52	121	95		60	-206	-163	-129	-103
9	**0**	7	4464	3541	2818	1974	61	8	5	195	4	122	97	4	3	661	6	3	9	761	6	6	3	5	1
0.7	0.7	564					15	123	98		15			105	83		52	121	95		60	-206	-163	-129	-102
0	1	3	4457	3533	2810	1973	58	5	2	194	4	122	97	4	2	660	5	3	8	759	4	4	0	2	8
0.7	**0.7**	563					15	123	98		15			105	83		52	121	95		60	-206	-162	-129	-102
1	**2**	9	4451	3526	2802	1971	56	3	0	194	3	121	97	3	1	658	3	2	6	758	2	3	8	0	5
0.7	0.7	563					15	123	97		15			105	83		52	121	95		60	-206	-162	-128	-102
2	3	5	4445	3519	2795	1970	54	0	7	194	3	121	96	2	0	657	2	1	5	756	1	1	6	7	2
0.7	**0.7**	563					15	122	97		15			105	82		52	121	95		59	-206	-162	-128	-101
3	**4**	1	4439	3511	2787	1969	52	8	4	194	3	121	96	1	9	656	0	0	4	755	9	0	4	4	9
0.7	0.7	562					15	122	97		15			105	82		51	120	95		59	-205	-162	-128	-101
4	5	7	4433	3504	2779	1967	50	5	2	194	3	121	96	1	8	654	9	9	3	753	7	8	1	2	7
0.7	**0.7**	562					15	122	96		15			105	82		51	120	95		59	-205	-161	-127	-101
5	**6**	4	4427	3497	2772	1966	48	3	9	194	2	120	95	0	7	653	8	8	1	752	6	7	9	9	4
0.7	0.7	562					15	122	96		15			104	82		51	120	95		59	-205	-161	-127	-101
6	7	0	4421	3490	2765	1965	46	0	7	194	2	120	95	9	6	652	6	8	0	750	4	6	7	7	1
0.7	**0.7**	561					15	121	96		15			104	82		51	120	94		59	-205	-161	-127	-100
7	**8**	6	4415	3484	2758	1963	44	8	4	193	2	120	95	9	4	650	5	7	9	749	3	4	5	4	9
0.7	0.7	561					15	121	96		15			104	82		51	120	94		59	-205	-161	-127	-100
8	9	3	4410	3477	2751	1962	42	6	2	193	2	120	95	8	3	649	4	6	8	747	1	3	3	2	6
0.7	**0.8**	560					15	121	95		15			104	82		51	120	94		59	-205	-161	-126	-100
9	**0**	9	4404	3470	2744	1961	40	3	9	193	2	120	95	7	2	648	2	5	6	746	0	2	1	9	4
0.8	0.8	560					15	121	95		15			104	82		51	120	94		58	-205	-160	-126	-100
0	1	6	4399	3464	2737	1960	38	1	7	193	2	119	94	7	1	647	1	5	5	744	8	0	9	7	1
0.8	**0.8**	560					15	120	95		15			104	82		51	120	94		58	-204	-160	-126	-
1	**2**	2	4393	3457	2730	1959	36	9	4	193	1	119	94	6	0	646	0	4	4	743	7	9	7	5	999
0.8	0.8	559					15	120	95		15			104	81		50	120	94		58	-204	-160	-126	-
2	3	9	4388	3451	2723	1957	34	7	2	193	1	119	94	5	9	644	9	3	3	742	5	8	5	2	996
0.8	**0.8**	559					15	120	95		15			104	81		50	120	94		58	-204	-160	-126	-
3	**4**	5	4383	3445	2717	1956	32	4	0	193	1	119	94	5	8	643	7	2	2	740	4	7	3	0	994
0.8	0.8	559					15	120	94		15			104	81		50	120	94		58	-204	-160	-125	-
4	5	2	4377	3439	2710	1955	30	2	8	193	1	118	93	4	7	642	6	2	1	739	2	5	1	8	991
0.8	**0.8**	558					15	120	94		15			104	81		50	120	94		58	-	-	-	-
5	**6**	9	4372	3433	2704	1954	29	0	5	192	1	118	93	4	6	641	5	1	0	738	1	204	159	125	989

																								4	9	6	
0.8	0.8	558					15	119	94		15			104	81		50	120	93		58	204	159	125	-
6	7	5	4367	3427	2698	1953	27	8	3	192	0	118	93	3	5	640	4	0	8	736	0	3	7	3	987
0.8	**0.8**	558					15	119	94		15			104	81		50	120	93		57	204	159	125	-
7	**8**	2	4362	3421	2692	1952	25	6	1	192	0	118	93	2	5	639	3	0	7	735	8	2	6	1	985
0.8	0.8	557					15	119	93		15			104	81		50	119	93		57	204	159	124	-
8	9	9	4357	3415	2685	1950	23	4	9	192	0	118	92	2	4	638	1	9	6	734	7	1	4	9	982
0.8	**0.9**	557					15	119	93		15			104	81		50	119	93		57	204	159	124	-
9	**0**	6	4352	3409	2679	1949	22	2	7	192	0	117	92	1	3	637	0	8	5	733	6	0	2	7	980
0.9	0.9	557					15	119	93		15			104	81		49	119	93		57	203	159	124	-
0	1	3	4347	3404	2673	1948	20	0	5	192	0	117	92	1	2	636	9	8	4	731	5	8	0	5	978
0.9	**0.9**	557					15	118	93		15			104	81		49	119	93		57	203	158	124	-
1	**2**	0	4343	3398	2668	1947	18	8	3	192	0	117	92	0	1	634	8	7	3	730	3	7	8	3	976
0.9	0.9	556					15	118	93		14			103	81		49	119	93		57	203	158	124	-
2	3	7	4338	3392	2662	1946	17	6	1	192	9	117	92	9	0	633	7	6	2	729	2	6	7	1	974
0.9	**0.9**	556					15	118	92		14			103	80		49	119	93		57	203	158	123	-
3	**4**	4	4333	3387	2656	1945	15	4	9	192	9	117	91	9	9	632	6	6	1	728	1	5	5	9	972
0.9	0.9	556					15	118	92		14			103	80		49	119	93		57	203	158	123	-
4	5	1	4329	3382	2650	1944	13	2	7	192	9	116	91	8	8	631	5	5	0	727	0	4	3	7	969
0.9	**0.9**	555					15	118	92		14			103	80		49	119	92		56	203	158	123	-
5	**6**	8	4324	3376	2645	1943	12	0	5	191	9	116	91	8	7	630	4	4	9	726	8	3	2	5	967
0.9	0.9	555					15	117	92		14			103	80		49	119	92		56	203	158	123	-
6	7	5	4320	3371	2639	1942	10	8	3	191	9	116	91	7	7	629	3	4	8	724	7	2	0	3	965
0.9	**0.9**	555					15	117	92		14			103	80		49	119	92		56	203	157	123	-
7	**8**	2	4315	3366	2634	1941	09	7	1	191	9	116	91	7	6	628	2	3	7	723	6	1	8	1	963
0.9	0.9	554					15	117	91		14			103	80		49	119	92		56	203	157	122	-
8	9	9	4311	3361	2629	1940	07	5	9	191	8	116	91	6	5	628	1	3	6	722	5	0	7	9	961
0.9	**1.0**	554					15	117	91		14			103	80		49	119	92		56	202	157	122	-
9	**0**	7	4306	3356	2623	1939	06	3	7	191	8	116	90	6	4	627	0	2	5	721	4	9	5	7	960
1.0	1.0	554					15	117	91		14			103	80		48	119	92		56	202	157	122	-
0	1	4	4302	3350	2618	1938	04	1	5	191	8	115	90	5	3	626	9	1	4	720	3	8	4	6	958
1.0	**1.0**	554					15	117	91		14			103	80		48	119	92		56	202	157	122	-
1	**2**	1	4298	3346	2613	1937	03	0	3	191	8	115	90	5	3	625	8	1	4	719	1	7	2	4	956
1.0	1.0	553	4294	3341	2608	1936	15	116	91	191	14	115	90	103	80	624	48	119	92	718	56	-	-	-	-

2	3	8					01	8	2		8			4	2		7	0	3		0	202	157	122	954
																						6	1	2	
																						-	-	-	
1.0	**1.0**	553					15	116	91		14			103	80		48	119	92		55	202	156	122	-
3	**4**	6	4289	3336	2603	1935	00	6	0	191	8	115	90	4	1	623	6	0	2	717	9	5	9	0	952
																						-	-	-	
1.0	1.0	553					14	116	90		14			103	80		48	118	92		55	202	156	121	-
4	5	3	4285	3331	2598	1934	98	5	8	191	8	115	89	3	0	622	5	9	1	716	8	4	7	8	950
																						-	-	-	
1.0	**1.0**	553					14	116	90		14			103	79		48	118	92		55	202	156	121	-
5	**6**	0	4281	3326	2593	1933	97	3	6	190	7	115	89	3	9	621	4	8	0	715	7	3	6	7	948
																						-	-	-	
1.0	1.0	552					14	116	90		14			103	79		48	118	91		55	202	156	121	-
6	7	8	4277	3321	2588	1933	95	1	5	190	7	114	89	2	9	620	3	8	9	714	6	2	5	5	947
																						-	-	-	
1.0	**1.0**	552					14	116	90		14			103	79		48	118	91		55	202	156	121	-
7	**8**	5	4273	3317	2583	1932	94	0	3	190	7	114	89	2	8	619	2	7	8	713	5	1	3	3	945
																						-	-	-	
1.0	1.0	552					14	115	90		14			103	79		48	118	91		55	202	156	121	-
8	9	3	4269	3312	2578	1931	93	8	1	190	7	114	89	1	7	618	1	7	7	712	4	0	2	2	943
																						-	-	-	
1.0	**1.1**	552					14	115	90		14			103	79		48	118	91		55	201	156	121	-
9	**0**	0	4265	3308	2574	1930	91	6	0	190	7	114	89	1	6	618	1	6	7	711	3	9	0	0	941
																						-	-	-	
1.1	1.1	551					14	115	89		14			103	79		48	118	91		55	201	155	120	-
0	1	8	4262	3303	2569	1929	90	5	8	190	7	114	88	0	6	617	0	6	6	710	2	8	9	8	940
																						-	-	-	
1.1	**1.1**	551					14	115	89		14			103	79		47	118	91		55	201	155	120	-
1	**2**	5	4258	3299	2564	1928	88	3	6	190	7	114	88	0	5	616	9	5	5	709	1	7	7	7	938
																						-	-	-	
1.1	1.1	551					14	115	89		14			102	79		47	118	91		55	201	155	120	-
2	3	3	4254	3294	2560	1927	87	2	5	190	7	113	88	9	4	615	8	5	4	708	0	6	6	5	936
																						-	-	-	
1.1	**1.1**	551					14	115	89		14			102	79		47	118	91		54	201	155	120	-
3	**4**	0	4250	3290	2555	1926	86	0	3	190	6	113	88	9	4	614	7	4	3	707	9	5	5	3	935
																						-	-	-	
1.1	1.1	550					14	114	89		14			102	79		47	118	91		54	201	155	120	-
4	5	8	4246	3286	2551	1926	85	9	2	190	6	113	88	8	3	614	6	4	3	706	8	5	3	2	933
																						-	-	-	
1.1	**1.1**	550					14	114	89		14			102	79		47	118	91		54	201	155	120	-
5	**6**	5	4243	3281	2546	1925	83	7	0	190	6	113	88	8	2	613	5	3	2	705	7	4	2	0	931
																						-	-	-	
1.1	1.1	550					14	114	88		14			102	79		47	118	91		54	201	155	119	-
6	7	3	4239	3277	2542	1924	82	6	9	190	6	113	88	8	2	612	5	3	1	704	6	3	1	9	930
																						-	-	-	
1.1	**1.1**	550					14	114	88		14			102	79		47	118	91		54	201	154	119	-
7	**8**	1	4235	3273	2538	1923	81	4	7	189	6	113	87	7	1	611	4	2	0	703	5	2	9	7	928
																						-	-	-	
1.1	1.1	549					14	114	88		14			102	79		47	118	90		54	201	154	119	-
8	9	8	4232	3269	2533	1922	79	3	6	189	6	113	87	7	0	610	3	2	9	702	4	1	8	6	927

1.19	**1.20**	5496	4228	3265	2529	1921	1478	1141	884	189	146	112	87	1026	790	610	472	1181	909	702	543	-2010	-1547	-1194	-925
1.20	1.21	5494	4225	3261	2525	1921	1477	1140	883	189	146	112	87	1026	789	609	471	1181	908	701	543	-2009	-1545	-1193	-924
1.21	**1.22**	5491	4221	3257	2521	1920	1476	1138	881	189	145	112	87	1025	788	608	471	1180	907	700	542	-2009	-1544	-1191	-922
1.22	1.23	5489	4218	3253	2517	1919	1475	1137	880	189	145	112	87	1025	788	607	470	1180	906	699	541	-2008	-1543	-1190	-920
1.23	**1.24**	5487	4214	3249	2512	1918	1473	1136	878	189	145	112	87	1025	787	607	469	1179	906	698	540	-2007	-1542	-1188	-919
1.24	1.25	5485	4211	3245	2508	1917	1472	1135	877	189	145	112	86	1024	786	606	468	1179	905	697	539	-2006	-1540	-1187	-918
1.25	**1.26**	5483	4208	3241	2504	1917	1471	1133	876	189	145	112	86	1024	786	605	468	1178	904	696	538	-2005	-1539	-1185	-916
1.26	1.27	5480	4204	3237	2500	1916	1470	1132	874	189	145	111	86	1023	785	604	467	1178	903	696	537	-2005	-1538	-1184	-915
1.27	**1.28**	5478	4201	3233	2497	1915	1469	1130	873	189	145	111	86	1023	784	604	466	1177	903	695	536	-2004	-1537	-1183	-913
1.28	1.29	5476	4198	3229	2493	1914	1468	1129	871	189	145	111	86	1023	784	603	465	1177	902	694	536	-2003	-1535	-1181	-912
1.29	**1.30**	5474	4194	3226	2489	1914	1466	1128	870	189	144	111	86	1022	783	602	465	1176	901	693	535	-2002	-1534	-1180	-910
1.30	1.31	5472	4191	3222	2485	1913	1465	1126	869	188	144	111	86	1022	783	602	464	1176	901	692	534	-2001	-1533	-1178	-909
1.31	**1.32**	5470	4188	3218	2481	1912	1464	1125	867	188	144	111	85	1021	782	601	463	1175	900	692	533	-2001	-1532	-1177	-908
1.32	1.33	5468	4185	3214	2477	1912	1463	1124	866	188	144	111	85	1021	781	600	463	1175	899	691	532	-2000	-1531	-1176	-906
1.33	**1.34**	5466	4182	3211	2474	1911	1462	1123	865	188	144	111	85	1021	781	600	462	1175	899	690	532	-1999	-1530	-1174	-905
1.34	1.35	5464	4179	3207	2470	1910	1461	1121	864	188	144	110	85	1020	780	599	461	1174	898	689	531	-1998	-1528	-1173	-903
1.35	**1.36**	5462	4176	3204	2466	1909	1460	1120	862	188	144	110	85	1020	780	598	461	1174	897	688	530	-1998	-1527	-1172	-902

																										8	7	2	
																										-	-	-	
1.3	1.3	546					14	111	86		14			101	77		46	117	89		52	199	152	117	-
6	7	0	4172	3200	2463	1909	59	9	1	188	4	110	85	9	9	598	0	3	7	688	9	7	6	1	901
																						-	-	-	
1.3	**1.3**	545					14	111	86		14			101	77		45	117	89		52	199	152	116	-
7	**8**	8	4169	3197	2459	1908	58	8	0	188	4	110	85	9	9	597	9	3	6	687	8	6	5	9	899
																						-	-	-	
1.3	1.3	545					14	111	85		14			101	77		45	117	89		52	199	152	116	-
8	9	6	4166	3193	2456	1907	57	6	8	188	4	110	85	9	8	596	9	2	5	686	8	6	4	8	898
																						-	-	-	
1.3	**1.4**	545					14	111	85		14			101	77		45	117	89		52	199	152	116	-
9	**0**	4	4163	3190	2452	1907	56	5	7	188	3	110	84	8	7	596	8	2	5	685	7	5	3	7	897
																						-	-	-	
1.4	1.4	545					14	111	85		14			101	77		45	117	89		52	199	152	116	-
0	1	2	4160	3186	2449	1906	54	4	6	188	3	110	84	8	7	595	7	2	4	685	6	4	2	6	896
																						-	-	-	
1.4	**1.4**	545					14	111	85		14			101	77		45	117	89		52	199	152	116	-
1	**2**	0	4157	3183	2445	1905	53	3	5	188	3	110	84	8	6	594	7	1	3	684	5	3	1	4	894
																						-	-	-	
1.4	1.4	544					14	111	85		14			101	77		45	117	89		52	199	152	116	-
2	3	8	4155	3180	2442	1905	52	2	4	188	3	110	84	7	6	594	6	1	3	683	5	3	0	3	893
																						-	-	-	
1.4	**1.4**	544					14	111	85		14			101	77		45	117	89		52	199	151	116	-
3	**4**	6	4152	3176	2438	1904	51	0	2	188	3	109	84	7	5	593	5	0	2	683	4	2	9	2	892
																						-	-	-	
1.4	1.4	544					14	110	85		14			101	77		45	117	89		52	199	151	116	-
4	5	4	4149	3173	2435	1903	50	9	1	188	3	109	84	7	5	592	5	0	2	682	3	1	8	1	891
																						-	-	-	
1.4	**1.4**	544					14	110	85		14			101	77		45	116	89		52	199	151	115	-
5	**6**	2	4146	3170	2431	1903	49	8	0	187	3	109	84	6	4	592	4	9	1	681	3	1	6	9	889
																						-	-	-	
1.4	1.4	544					14	110	84		14			101	77		45	116	89		52	199	151	115	-
6	7	0	4143	3166	2428	1902	48	7	9	187	3	109	84	6	4	591	3	9	0	680	2	0	5	8	888
																						-	-	-	
1.4	**1.4**	543					14	110	84		14			101	77		45	116	89		52	198	151	115	-
7	**8**	8	4140	3163	2425	1901	47	6	8	187	3	109	84	5	3	591	3	9	0	680	1	9	4	7	887
																						-	-	-	
1.4	1.4	543					14	110	84		14			101	77		45	116	88		52	198	151	115	-
8	9	7	4137	3160	2422	1901	46	5	7	187	3	109	83	5	3	590	2	8	9	679	0	9	3	6	886
																						-	-	-	
1.4	**1.5**	**543**					**14**	**110**	**84**		**14**			**101**	**77**		**45**	**116**	**88**		**52**	**198**	**151**	**115**	**-**
9	**0**	**5**	**4135**	**3157**	**2418**	**1900**	**45**	**4**	**5**	**187**	**2**	**109**	**83**	**5**	**2**	**589**	**2**	**8**	**9**	**678**	**0**	**8**	**2**	**5**	**885**

I93N (South of Boston) -- Congestion

		ND (1)				ND (2)				ND (3)				ND (4)				ND (5)			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**

0.0	0.0	958	958					196	196	-	-	-	-	285	285	285	285	-	-	-	-
0	1	9	9	9589	9589	1969	1969	9	9	1120	1120	1120	1120	3	3	3	3	3103	3103	3103	3103
0.0	**0.0**	913	871					171	164	-	-			271	259	248	237	-	-	-	-
1	**2**	2	7	8338	7991	1875	1790	2	1	1067	1018	-974	-933	7	4	1	8	2955	2821	2698	2586
0.0	0.0	891	830					159	149	-				265	247	230	216	-	-	-	-
2	3	0	2	7757	7264	1830	1705	3	2	1041	-970	-906	-848	1	0	8	1	2883	2687	2510	2351
0.0	**0.0**	876	803					151	139	-				260	239	219	202	-	-	-	-
3	**4**	4	4	7387	6810	1800	1650	7	8	1024	-938	-863	-795	7	0	8	6	2836	2600	2390	2204
0.0	0.0	865	783					146	133	-				257	233	211	193	-	-	-	-
4	5	5	8	7120	6486	1777	1610	2	2	1011	-916	-832	-758	5	2	8	0	2801	2537	2304	2099
0.0	**0.0**	857	768					141	128	-				255	228	205	185	-	-	-	-
5	**6**	0	5	6913	6237	1760	1578	9	1	1001	-898	-807	-728	0	6	7	6	2773	2487	2237	2018
0.0	0.0	849	755					138	123					252	224	200	179	-	-	-	-
6	7	9	9	6744	6035	1745	1552	5	9	-993	-883	-788	-705	9	9	7	6	2750	2446	2182	1953
0.0	0.0	843	745					135	120					251	221	196	174	-	-	-	-
7	8	9	2	6603	5868	1733	1530	6	5	-986	-870	-771	-685	1	7	4	6	2731	2412	2137	1899
0.0	**0.0**	838	736					133	117					249	219	192	170	-	-	-	-
8	**9**	6	0	6481	5725	1722	1511	1	5	-980	-860	-757	-669	5	0	8	3	2714	2382	2097	1852
0.0	0.1	834	727					130	115					248	216	189	166	-	-	-	-
9	0	0	9	6375	5600	1712	1495	9	0	-974	-850	-745	-654	1	6	7	6	2699	2356	2063	1812
0.1	**0.1**	829	720					129	112					246	214	186	163	-	-	-	-
0	**1**	8	7	6281	5490	1704	1480	0	7	-969	-842	-734	-641	9	4	9	4	2685	2332	2032	1777
0.1	0.1	826	714					127	110					245	212	184	160	-	-	-	-
1	2	1	2	6196	5392	1696	1467	2	7	-965	-834	-724	-630	8	5	4	4	2673	2311	2005	1745
0.1	**0.1**	822	708					125	108					244	210	182	157	-	-	-	-
2	**3**	7	3	6120	5304	1689	1454	7	9	-961	-827	-715	-620	8	7	1	8	2662	2292	1980	1716
0.1	0.1	819	702					124	107					243	209	180	155	-	-	-	-
3	4	5	9	6050	5224	1683	1443	2	3	-957	-821	-707	-610	8	1	0	4	2652	2275	1958	1690
0.1	0.1	816	697					122	105					243	207	178	153	-	-	-	-
4	5	6	9	5986	5150	1677	1433	9	8	-954	-815	-699	-602	0	7	1	2	2642	2259	1937	1667
0.1	**0.1**	813	693					121	104					242	206	176	151	-	-	-	-
5	**6**	9	3	5927	5082	1671	1424	7	4	-951	-810	-692	-594	1	3	3	2	2634	2244	1918	1645
0.1	0.1	811	689					120	103					241	205	174	149	-	-	-	-
6	7	3	0	5871	5020	1666	1415	6	1	-948	-805	-686	-586	4	0	7	3	2625	2230	1900	1624
0.1	**0.1**	809	685					119	101					240	203	173	147	-	-	-	-
7	**8**	0	0	5820	4961	1661	1407	5	9	-945	-800	-680	-579	7	8	2	6	2618	2217	1883	1605
0.1	0.1	806	681					118	100					240	202	171	146	-	-	-	-
8	9	7	2	5772	4907	1657	1399	5	8	-942	-796	-674	-573	0	7	7	0	2611	2204	1868	1588
0.1	**0.2**	804	677					117						239	201	170	144	-	-	-	-
9	**0**	6	6	5727	4856	1652	1391	6	997	-940	-791	-669	-567	4	6	4	5	2604	2193	1853	1571
0.2	0.2	802	674					116						238	200	169	143	-	-	-	-
0	1	6	3	5684	4807	1648	1385	7	987	-937	-788	-664	-562	8	6	1	0	2597	2182	1839	1556
0.2	0.2	800	671					115						238	199	167	141	-	-	-	-
1	2	7	1	5644	4762	1644	1378	9	978	-935	-784	-659	-556	2	7	9	7	2591	2172	1826	1541
0.2	**0.2**	798	668					115						237	198	166	140	-	-	-	-
2	**3**	9	0	5606	4719	1640	1372	1	969	-933	-780	-655	-551	7	8	8	4	2585	2162	1814	1527
0.2	0.2	797	665					114						237	197	165	139	-	-	-	-
3	4	1	1	5569	4679	1637	1366	4	961	-931	-777	-650	-546	2	9	7	2	2580	2152	1802	1514
0.2	**0.2**	795	662					113						236	197	164	138	-	-	-	-
4	**5**	5	4	5535	4640	1633	1360	6	953	-929	-774	-646	-542	7	1	7	0	2574	2143	1791	1501

0.2	0.2	793	659					113						236	196	163	137	-	-	-	-		
5	6	9	7	5502	4603	1630	1355	0	945	-927	-771	-643	-538	2	3	7	0	2569	2135	1780	1490		
0.2	**0.2**	792	657					112						235	195	162	135	-	-	-	-		
6	**7**	4	2	5470	4568	1627	1350	3	938	-925	-768	-639	-534	8	5	8	9	2564	2127	1770	1478		
0.2	0.2	790	654					111						235	194	161	134	-	-	-	-		
7	8	9	8	5440	4534	1624	1345	7	931	-924	-765	-635	-530	3	8	9	9	2559	2119	1760	1467		
0.2	0.2	789	652					111						234	194	161	134	-	-	-	-		
8	9	5	5	5411	4502	1621	1340	1	924	-922	-762	-632	-526	9	1	0	0	2555	2111	1751	1457		
0.2	**0.3**	788	650					110						234	193	160	133	-	-	-	-		
9	**0**	1	2	5383	4471	1618	1335	5	918	-921	-759	-629	-522	5	5	2	0	2550	2104	1742	1447		
0.3	0.3	786	648					110						234	192	159	132	-	-	-	-		
0	1	8	1	5356	4442	1616	1331	0	912	-919	-757	-626	-519	1	8	4	2	2546	2097	1733	1437		
0.3	**0.3**	785	646					109						233	192	158	131	-	-	-	-		
1	**2**	6	0	5331	4413	1613	1326	5	906	-918	-754	-623	-515	7	2	6	3	2542	2090	1725	1428		
0.3	0.3	784	644					108						233	191	157	130	-	-	-	-		
2	3	3	0	5306	4386	1611	1322	9	901	-916	-752	-620	-512	4	6	9	5	2538	2084	1717	1419		
0.3	**0.3**	783	642					108						233	191	157	129	-	-	-	-		
3	**4**	1	0	5282	4359	1608	1318	5	895	-915	-750	-617	-509	0	0	1	7	2534	2078	1709	1411		
0.3	0.3	782	640					108						232	190	156	128	-	-	-	-		
4	5	0	1	5258	4334	1606	1314	0	890	-913	-748	-614	-506	7	5	5	9	2531	2071	1702	1402		
0.3	0.3	780	638					107						232	189	155	128	-	-	-	-		
5	6	9	3	5236	4309	1603	1311	5	885	-912	-746	-612	-503	3	9	8	2	2527	2066	1694	1394		
0.3	**0.3**	779	636					107						232	189	155	127	-	-	-	-		
6	**7**	8	5	5214	4285	1601	1307	1	880	-911	-743	-609	-501	0	4	1	5	2523	2060	1687	1387		
0.3	0.3	778	634					106						231	188	154	126	-	-	-	-		
7	8	7	8	5193	4262	1599	1304	6	875	-910	-741	-607	-498	7	9	5	8	2520	2054	1681	1379		
0.3	**0.3**	777	633					106						231	188	153	126	-	-	-	-		
8	**9**	7	2	5173	4240	1597	1300	2	871	-908	-740	-604	-495	4	4	9	2	2517	2049	1674	1372		
0.3	0.4	776	631					105						231	187	153	125	-	-	-	-		
9	0	7	5	5153	4218	1595	1297	8	866	-907	-738	-602	-493	1	9	3	5	2513	2044	1668	1365		
0.4	**0.4**	775	630					105						230	187	152	124	-	-	-	-		
0	**1**	8	0	5134	4197	1593	1294	4	862	-906	-736	-600	-490	8	4	7	9	2510	2039	1661	1358		
0.4	0.4	774	628					105						230	187	152	124	-	-	-	-		
1	2	8	4	5115	4177	1591	1290	0	858	-905	-734	-597	-488	5	0	2	3	2507	2034	1655	1352		
0.4	0.4	773	626					104						230	186	151	123	-	-	-	-		
2	3	9	9	5097	4157	1589	1287	7	854	-904	-732	-595	-486	3	5	6	7	2504	2029	1649	1345		
0.4	**0.4**	773	625					104						230	186	151	123	-	-	-	-		
3	**4**	0	5	5079	4138	1587	1284	3	850	-903	-731	-593	-483	0	1	1	1	2501	2024	1644	1339		
0.4	0.4	772	624					103						229	185	150	122	-	-	-	-		
4	5	1	1	5062	4119	1585	1281	9	846	-902	-729	-591	-481	7	7	6	6	2499	2019	1638	1333		
0.4	**0.4**	771	622					103						229	185	150	122	-	-	-	-		
5	**6**	3	7	5045	4101	1584	1279	6	842	-901	-727	-589	-479	5	3	1	0	2496	2015	1633	1327		
0.4	0.4	770	621					103						229	184	149	121	-	-	-	-		
6	7	4	3	5029	4083	1582	1276	3	838	-900	-726	-587	-477	2	9	6	5	2493	2011	1627	1321		
0.4	**0.4**	769	620					102						229	184	149	121	-	-	-	-		
7	**8**	6	0	5013	4066	1580	1273	9	835	-899	-724	-585	-475	0	5	1	0	2490	2006	1622	1316		
0.4	0.4	768	618					102						228	184	148	120	-	-	-	-		
8	9	8	7	4997	4049	1579	1270	6	831	-898	-723	-584	-473	7	1	7	5	2488	2002	1617	1310		
0.4	0.5	768	617					102						228	183	148	120	-	-	-	-		
9	0	0	5	4982	4033	1577	1268	3	828	-897	-721	-582	-471	5	7	2	0	2485	1998	1612	1305		

0.5	**0.5**	767	616					102						228	183	147	119	-	-	-	-
0	**1**	2	2	4967	4017	1575	1265	0	825	-896	-720	-580	-469	3	3	8	5	2483	1994	1607	1300
0.5	0.5	766	615					101						228	183	147	119	-	-	-	-
1	2	5	0	4952	4001	1574	1263	7	822	-895	-718	-578	-467	1	0	3	0	2480	1990	1603	1295
0.5	**0.5**	765	613					101						227	182	146	118	-	-	-	-
2	**3**	8	8	4938	3986	1572	1260	4	818	-894	-717	-577	-466	8	6	9	6	2478	1986	1598	1290
0.5	0.5	765	612					101						227	182	146	118	-	-	-	-
3	4	0	7	4924	3971	1571	1258	1	815	-894	-716	-575	-464	6	3	5	1	2476	1983	1593	1285
0.5	**0.5**	764	611					100						227	182	146	117	-	-	-	-
4	**5**	3	6	4910	3956	1569	1256	8	812	-893	-714	-574	-462	4	0	1	7	2473	1979	1589	1280
0.5	0.5	763	610					100						227	181	145	117	-	-	-	-
5	6	6	4	4897	3942	1568	1253	6	809	-892	-713	-572	-460	2	6	7	3	2471	1975	1585	1276
0.5	0.5	763	609					100						227	181	145	116	-	-	-	-
6	7	0	4	4884	3928	1567	1251	3	806	-891	-712	-570	-459	0	3	3	9	2469	1972	1580	1271
0.5	**0.5**	762	608					100						226	181	144	116	-	-	-	-
7	**8**	3	3	4871	3914	1565	1249	0	804	-890	-710	-569	-457	8	0	9	4	2467	1968	1576	1267
0.5	0.5	761	607											226	180	144	116	-	-	-	-
8	9	6	2	4859	3900	1564	1247	998	801	-890	-709	-567	-456	6	7	6	0	2465	1965	1572	1262
0.5	**0.6**	761	606											226	180	144	115	-	-	-	-
9	**0**	0	2	4846	3887	1563	1245	995	798	-889	-708	-566	-454	4	4	2	7	2463	1962	1568	1258
0.6	0.6	760	605											226	180	143	115	-	-	-	-
0	1	4	2	4834	3874	1561	1243	993	796	-888	-707	-565	-453	2	1	8	3	2460	1958	1564	1254
0.6	**0.6**	759	604											226	179	143	114	-	-	-	-
1	**2**	7	2	4822	3862	1560	1241	990	793	-887	-706	-563	-451	0	8	5	9	2458	1955	1561	1250
0.6	0.6	759	603											225	179	143	114	-	-	-	-
2	3	1	2	4811	3849	1559	1239	988	790	-887	-705	-562	-450	9	5	1	5	2456	1952	1557	1246
0.6	0.6	758	602											225	179	142	114	-	-	-	-
3	4	5	3	4799	3837	1558	1237	985	788	-886	-703	-561	-448	7	2	8	2	2455	1949	1553	1242
0.6	**0.6**	757	601											225	178	142	113	-	-	-	-
4	**5**	9	3	4788	3825	1556	1235	983	785	-885	-702	-559	-447	5	9	5	8	2453	1946	1549	1238
0.6	0.6	757	600											225	178	142	113	-	-	-	-
5	6	3	4	4777	3813	1555	1233	981	783	-885	-701	-558	-445	3	6	1	5	2451	1943	1546	1234
0.6	**0.6**	756	599											225	178	141	113	-	-	-	-
6	**7**	8	5	4766	3802	1554	1231	979	781	-884	-700	-557	-444	2	4	8	1	2449	1940	1542	1230
0.6	0.6	756	598											225	178	141	112	-	-	-	-
7	8	2	6	4756	3791	1553	1229	977	778	-883	-699	-555	-443	0	1	5	8	2447	1937	1539	1227
0.6	**0.6**	755	597											224	177	141	112	-	-	-	-
8	**9**	6	7	4745	3779	1552	1227	974	776	-883	-698	-554	-441	8	8	2	4	2445	1934	1536	1223
0.6	0.7	755	596											224	177	140	112	-	-	-	-
9	0	1	9	4735	3769	1551	1226	972	774	-882	-697	-553	-440	7	6	9	1	2444	1931	1532	1219
0.7	0.7	754	596											224	177	140	111	-	-	-	-
0	1	6	0	4725	3758	1549	1224	970	772	-881	-696	-552	-439	5	3	6	8	2442	1929	1529	1216
0.7	**0.7**	754	595											224	177	140	111	-	-	-	-
1	**2**	0	2	4715	3747	1548	1222	968	769	-881	-695	-551	-438	3	1	3	5	2440	1926	1526	1213
0.7	0.7	753	594											224	176	140	111	-	-	-	-
2	3	5	4	4705	3737	1547	1220	966	767	-880	-694	-550	-436	2	8	0	2	2438	1923	1523	1209
0.7	**0.7**	753	593											224	176	139	110	-	-	-	-
3	**4**	0	5	4695	3727	1546	1219	964	765	-879	-693	-548	-435	0	6	7	9	2437	1921	1519	1206
0.7	0.7	752	592											223	176	139	110	-	-	-	-
4	5	5	7	4686	3717	1545	1217	962	763	-879	-692	-547	-434	9	4	4	6	2435	1918	1516	1203

0.7	**0.7**	752	592											223	176	139	110	-	-	-	-		
5	**6**	0	0	4676	3707	1544	1216	960	761	-878	-691	-546	-433	7	1	1	3	2433	1916	1513	1199		
0.7	0.7	751	591											223	175	138	110	-	-	-	-		
6	7	5	2	4667	3697	1543	1214	958	759	-878	-691	-545	-432	6	9	9	0	2432	1913	1510	1196		
0.7	0.7	751	590											223	175	138	109	-	-	-	-		
7	8	0	4	4658	3687	1542	1212	957	757	-877	-690	-544	-431	4	7	6	7	2430	1911	1507	1193		
0.7	**0.7**	750	589											223	175	138	109	-	-	-	-		
8	**9**	5	7	4649	3678	1541	1211	955	755	-877	-689	-543	-430	3	4	3	4	2429	1908	1504	1190		
0.7	0.8	750	588											223	175	138	109	-	-	-	-		
9	0	0	9	4640	3669	1540	1209	953	753	-876	-688	-542	-429	2	2	1	2	2427	1906	1502	1187		
0.8	**0.8**	749	588											223	175	137	108	-	-	-	-		
0	**1**	6	2	4632	3660	1539	1208	951	751	-876	-687	-541	-427	0	0	8	9	2426	1903	1499	1184		
0.8	0.8	749	587											222	174	137	108	-	-	-	-		
1	2	1	5	4623	3651	1538	1206	949	750	-875	-686	-540	-426	9	8	6	6	2424	1901	1496	1181		
0.8	**0.8**	748	586											222	174	137	108	-	-	-	-		
2	**3**	7	7	4615	3642	1537	1205	948	748	-874	-685	-539	-425	7	6	3	3	2423	1899	1493	1178		
0.8	0.8	748	586											222	174	137	108	-	-	-	-		
3	4	2	0	4606	3633	1536	1203	946	746	-874	-684	-538	-424	6	4	1	1	2421	1896	1491	1176		
0.8	0.8	747	585											222	174	136	107	-	-	-	-		
4	5	8	3	4598	3624	1535	1202	944	744	-873	-684	-537	-423	5	2	8	8	2420	1894	1488	1173		
0.8	**0.8**	747	584											222	173	136	107	-	-	-	-		
5	**6**	3	6	4590	3616	1535	1201	943	742	-873	-683	-536	-422	3	9	6	6	2418	1892	1485	1170		
0.8	0.8	746	584											222	173	136	107	-	-	-	-		
6	7	9	0	4582	3607	1534	1199	941	741	-872	-682	-535	-421	2	7	3	3	2417	1890	1483	1167		
0.8	**0.8**	746	583											222	173	136	107	-	-	-	-		
7	**8**	5	3	4574	3599	1533	1198	939	739	-872	-681	-534	-420	1	5	1	1	2416	1888	1480	1165		
0.8	0.8	746	582											222	173	135	106	-	-	-	-		
8	9	0	6	4566	3591	1532	1196	938	737	-871	-681	-533	-419	0	3	9	8	2414	1885	1478	1162		
0.8	**0.9**	745	582											221	173	135	106	-	-	-	-		
9	**0**	6	0	4559	3583	1531	1195	936	736	-871	-680	-532	-418	8	2	6	6	2413	1883	1475	1159		
0.9	0.9	745	581											221	173	135	106	-	-	-	-		
0	1	2	3	4551	3575	1530	1194	935	734	-870	-679	-532	-418	7	0	4	4	2411	1881	1473	1157		
0.9	0.9	744	580											221	172	135	106	-	-	-	-		
1	2	8	7	4544	3567	1529	1192	933	732	-870	-678	-531	-417	6	8	2	1	2410	1879	1470	1154		
0.9	**0.9**	744	580											221	172	135	105	-	-	-	-		
2	**3**	4	1	4536	3559	1529	1191	931	731	-869	-678	-530	-416	5	6	0	9	2409	1877	1468	1152		
0.9	0.9	744	579											221	172	134	105	-	-	-	-		
3	4	0	4	4529	3552	1528	1190	930	729	-869	-677	-529	-415	4	4	7	7	2408	1875	1466	1149		
0.9	**0.9**	743	578											221	172	134	105	-	-	-	-		
4	**5**	6	8	4522	3544	1527	1189	928	728	-869	-676	-528	-414	2	2	5	4	2406	1873	1463	1147		
0.9	0.9	743	578											221	172	134	105	-	-	-	-		
5	6	2	2	4515	3537	1526	1187	927	726	-868	-675	-527	-413	1	0	3	2	2405	1871	1461	1144		
0.9	**0.9**	742	577											221	171	134	105	-	-	-	-		
6	**7**	8	6	4508	3529	1525	1186	926	725	-868	-675	-526	-412	0	9	1	0	2404	1869	1459	1142		
0.9	0.9	742	577											220	171	133	104	-	-	-	-		
7	8	4	0	4501	3522	1525	1185	924	723	-867	-674	-526	-411	9	7	9	8	2403	1867	1456	1140		
0.9	0.9	742	576											220	171	133	104	-	-	-	-		
8	9	1	4	4494	3515	1524	1184	923	722	-867	-673	-525	-411	8	5	7	6	2401	1865	1454	1137		
0.9	**1.0**	741	575											220	171	133	104	-	-	-	-		
9	**0**	7	9	4487	3508	1523	1182	921	720	-866	-673	-524	-410	7	3	5	4	2400	1863	1452	1135		

1.0	1.0	741	575											220	171	133	104	-	-	-	-		
0	1	3	3	4480	3501	1522	1181	920	719	-866	-672	-523	-409	6	2	3	2	2399	1862	1450	1133		
1.0	**1.0**	740	574											220	171	133	104	-	-	-	-		
1	**2**	9	7	4474	3494	1521	1180	919	717	-865	-671	-523	-408	5	0	1	0	2398	1860	1448	1131		
1.0	1.0	740	574											220	170	132	103	-	-	-	-		
2	3	6	1	4467	3487	1521	1179	917	716	-865	-671	-522	-407	3	8	9	8	2397	1858	1446	1128		
1.0	**1.0**	740	573											220	170	132	103	-	-	-	-		
3	**4**	2	6	4461	3480	1520	1178	916	715	-865	-670	-521	-407	2	7	7	6	2395	1856	1443	1126		
1.0	1.0	739	573											220	170	132	103	-	-	-	-		
4	5	9	0	4454	3474	1519	1177	915	713	-864	-669	-520	-406	1	5	5	4	2394	1854	1441	1124		
1.0	1.0	739	572											220	170	132	103	-	-	-	-		
5	6	5	5	4448	3467	1519	1176	913	712	-864	-669	-519	-405	0	3	3	2	2393	1853	1439	1122		
1.0	**1.0**	739	572											219	170	132	103	-	-	-	-		
6	**7**	2	0	4441	3461	1518	1174	912	711	-863	-668	-519	-404	9	2	1	0	2392	1851	1437	1120		
1.0	1.0	738	571											219	170	132	102	-	-	-	-		
7	8	8	4	4435	3454	1517	1173	911	709	-863	-667	-518	-403	8	0	0	8	2391	1849	1435	1118		
1.0	**1.0**	738	570											219	169	131	102	-	-	-	-		
8	**9**	5	9	4429	3448	1516	1172	909	708	-863	-667	-517	-403	7	9	8	6	2390	1847	1433	1116		
1.0	1.1	738	570											219	169	131	102	-	-	-	-		
9	0	1	4	4423	3441	1516	1171	908	707	-862	-666	-517	-402	6	7	6	4	2389	1846	1431	1114		
1.1	**1.1**	737	569											219	169	131	102	-	-	-	-		
0	**1**	8	8	4417	3435	1515	1170	907	705	-862	-666	-516	-401	5	5	4	2	2388	1844	1429	1112		
1.1	1.1	737	569											219	169	131	102	-	-	-	-		
1	2	5	3	4411	3429	1514	1169	906	704	-861	-665	-515	-401	4	4	2	0	2386	1842	1427	1110		
1.1	1.1	737	568											219	169	131	101	-	-	-	-		
2	3	1	8	4405	3423	1514	1168	905	703	-861	-664	-515	-400	3	2	1	8	2385	1841	1425	1108		
1.1	**1.1**	736	568											219	169	130	101	-	-	-	-		
3	**4**	8	3	4399	3417	1513	1167	903	702	-861	-664	-514	-399	2	1	9	7	2384	1839	1424	1106		
1.1	1.1	736	567											219	168	130	101	-	-	-	-		
4	5	5	8	4393	3411	1512	1166	902	700	-860	-663	-513	-398	1	9	7	5	2383	1837	1422	1104		
1.1	**1.1**	736	567											219	168	130	101	-	-	-	-		
5	**6**	2	3	4388	3405	1512	1165	901	699	-860	-663	-512	-398	0	8	5	3	2382	1836	1420	1102		
1.1	1.1	735	566											218	168	130	101	-	-	-	-		
6	7	9	8	4382	3399	1511	1164	900	698	-859	-662	-512	-397	9	7	4	1	2381	1834	1418	1100		
1.1	**1.1**	735	566											218	168	130	101	-	-	-	-		
7	**8**	5	4	4376	3393	1510	1163	899	697	-859	-662	-511	-396	8	5	2	0	2380	1833	1416	1098		
1.1	1.1	735	565											218	168	130	100	-	-	-	-		
8	9	2	9	4371	3387	1510	1162	898	696	-859	-661	-511	-396	8	4	0	8	2379	1831	1414	1096		
1.1	1.2	734	565											218	168	129	100	-	-	-	-		
9	0	9	4	4365	3382	1509	1161	896	694	-858	-660	-510	-395	7	2	9	6	2378	1830	1413	1094		
1.2	**1.2**	734	564											218	168	129	100	-	-	-	-		
0	**1**	6	9	4360	3376	1508	1160	895	693	-858	-660	-509	-394	6	1	7	5	2377	1828	1411	1093		
1.2	1.2	734	564											218	167	129	100	-	-	-	-		
1	2	3	5	4355	3371	1508	1159	894	692	-858	-659	-509	-394	5	9	6	3	2376	1827	1409	1091		
1.2	**1.2**	734	564											218	167	129	100	-	-	-	-		
2	**3**	0	0	4349	3365	1507	1158	893	691	-857	-659	-508	-393	4	8	4	1	2375	1825	1407	1089		
1.2	1.2	733	563											218	167	129	100	-	-	-	-		
3	4	7	5	4344	3360	1507	1157	892	690	-857	-658	-507	-392	3	7	2	0	2374	1824	1406	1087		
1.2	**1.2**	733	563											218	167	129		-	-	-	-		
4	**5**	4	1	4339	3354	1506	1156	891	689	-857	-658	-507	-392	2	5	1	998	2373	1822	1404	1085		

1.2	1.2	733	562											218	167	128		-	-	-	-		
5	6	1	6	4333	3349	1505	1155	890	688	-856	-657	-506	-391	1	4	9	996	2372	1821	1402	1084		
1.2	1.2	732	562											218	167	128		-	-	-	-		
6	7	8	2	4328	3344	1505	1154	889	687	-856	-657	-506	-391	0	3	8	995	2371	1819	1401	1082		
1.2	**1.2**	732	561											218	167	128		-	-	-	-		
7	**8**	5	8	4323	3338	1504	1154	888	685	-856	-656	-505	-390	0	1	6	993	2370	1818	1399	1080		
1.2	1.2	732	561											217	167	128		-	-	-	-		
8	9	3	3	4318	3333	1504	1153	887	684	-855	-656	-504	-389	9	0	5	992	2370	1816	1397	1079		
1.2	**1.3**	732	560											217	166	128		-	-	-	-		
9	**0**	0	9	4313	3328	1503	1152	886	683	-855	-655	-504	-389	8	9	3	990	2369	1815	1396	1077		
1.3	1.3	731	560											217	166	128		-	-	-	-		
0	1	7	4	4308	3323	1502	1151	885	682	-855	-655	-503	-388	7	7	2	989	2368	1814	1394	1075		
1.3	**1.3**	731	560											217	166	128		-	-	-	-		
1	**2**	4	0	4303	3318	1502	1150	884	681	-854	-654	-503	-388	6	6	0	987	2367	1812	1393	1074		
1.3	1.3	731	559											217	166	127		-	-	-	-		
2	3	1	6	4298	3313	1501	1149	883	680	-854	-654	-502	-387	5	5	9	986	2366	1811	1391	1072		
1.3	1.3	730	559											217	166	127		-	-	-	-		
3	4	9	2	4294	3308	1501	1148	882	679	-854	-653	-501	-386	5	4	7	984	2365	1809	1389	1070		
1.3	**1.3**	730	558											217	166	127		-	-	-	-		
4	**5**	6	8	4289	3303	1500	1147	881	678	-853	-653	-501	-386	4	2	6	983	2364	1808	1388	1069		
1.3	1.3	730	558											217	166	127		-	-	-	-		
5	6	3	3	4284	3298	1500	1147	880	677	-853	-652	-500	-385	3	1	5	981	2363	1807	1386	1067		
1.3	**1.3**	730	557											217	166	127		-	-	-	-		
6	**7**	0	9	4279	3293	1499	1146	879	676	-853	-652	-500	-385	2	0	3	980	2362	1805	1385	1066		
1.3	1.3	729	557											217	165	127		-	-	-	-		
7	8	8	5	4275	3288	1499	1145	878	675	-852	-651	-499	-384	1	9	2	978	2362	1804	1383	1064		
1.3	**1.3**	729	557											217	165	127		-	-	-	-		
8	**9**	5	1	4270	3284	1498	1144	877	674	-852	-651	-499	-384	1	8	0	977	2361	1803	1382	1063		
1.3	1.4	729	556											217	165	126		-	-	-	-		
9	0	3	7	4265	3279	1497	1143	876	673	-852	-650	-498	-383	0	6	9	976	2360	1802	1380	1061		
1.4	1.4	729	556											216	165	126		-	-	-	-		
0	1	0	3	4261	3274	1497	1142	875	672	-851	-650	-498	-382	9	5	8	974	2359	1800	1379	1060		
1.4	**1.4**	728	555											216	165	126		-	-	-	-		
1	**2**	7	9	4256	3270	1496	1142	874	671	-851	-649	-497	-382	8	4	6	973	2358	1799	1377	1058		
1.4	1.4	728	555											216	165	126		-	-	-	-		
2	3	5	5	4252	3265	1496	1141	873	670	-851	-649	-497	-381	7	3	5	971	2357	1798	1376	1057		
1.4	**1.4**	728	555											216	165	126		-	-	-	-		
3	**4**	2	2	4247	3260	1495	1140	872	669	-851	-648	-496	-381	7	2	4	970	2357	1796	1374	1055		
1.4	1.4	728	554											216	165	126		-	-	-	-		
4	5	0	8	4243	3256	1495	1139	871	669	-850	-648	-496	-380	6	1	2	969	2356	1795	1373	1054		
1.4	**1.4**	727	554											216	164	126		-	-	-	-		
5	**6**	7	4	4238	3251	1494	1138	870	668	-850	-648	-495	-380	5	9	1	967	2355	1794	1372	1052		
1.4	1.4	727	554											216	164	126		-	-	-	-		
6	7	5	0	4234	3247	1494	1138	869	667	-850	-647	-495	-379	4	8	0	966	2354	1793	1370	1051		
1.4	1.4	727	553											216	164	125		-	-	-	-		
7	8	2	6	4230	3242	1493	1137	869	666	-849	-647	-494	-379	4	7	8	965	2353	1792	1369	1049		
1.4	**1.4**	727	553											216	164	125		-	-	-	-		
8	**9**	0	3	4226	3238	1493	1136	868	665	-849	-646	-494	-378	3	6	7	963	2352	1790	1367	1048		
1.4	**1.5**	**726**	**552**											**216**	**164**	**125**		-	-	-	-		
9	**0**	**7**	**9**	**4221**	**3234**	**1492**	**1135**	**867**	**664**	**-849**	**-646**	**-493**	**-378**	**2**	**5**	**6**	**962**	**2352**	**1789**	**1366**	**1046**		

I93N (South of Boston) -- Congestion

		ND (1)				ND (2)				ND (3)				ND (4)				ND (5)			
OP	NP	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**	**-0.05**	**-0.1**	**-0.15**	**-0.2**
0.00	0.01	13483	13483	13483	13483	634	634	634	634	589	589	589	589	1373	1373	1373	1373	-17	-17	-17	-17
0.01	**0.02**	12841	12257	11724	11236	604	576	551	528	561	535	512	491	1308	1248	1194	1144	-16	-15	-15	-14
0.02	0.03	12528	11674	10906	10214	589	549	513	480	547	510	476	446	1276	1189	1111	1040	-16	-15	-14	-13
0.03	**0.04**	12322	11297	10387	9576	579	531	488	450	538	494	454	418	1255	1150	1058	975	-16	-14	-13	-12
0.04	0.05	12170	11021	10012	9120	572	518	471	429	532	481	437	398	1239	1122	1019	929	-15	-14	-13	-11
0.05	**0.06**	12050	10805	9720	8769	567	508	457	412	526	472	425	383	1227	1100	990	893	-15	-14	-12	-11
0.06	0.07	11950	10628	9483	8486	562	500	446	399	522	464	414	371	1217	1082	966	864	-15	-13	-12	-11
0.07	**0.08**	11865	10479	9284	8251	558	493	437	388	518	458	406	360	1208	1067	945	840	-15	-13	-12	-10
0.08	0.09	11792	10349	9113	8049	554	487	429	378	515	452	398	352	1201	1054	928	820	-15	-13	-11	-10
0.09	**0.10**	11727	10235	8964	7874	551	481	421	370	512	447	392	344	1194	1042	913	802	-15	-13	-11	-10
0.10	0.11	11668	10134	8831	7720	549	477	415	363	510	443	386	337	1188	1032	899	786	-15	-13	-11	-10
0.11	**0.12**	11615	10043	8712	7582	546	472	410	357	507	439	381	331	1183	1023	887	772	-15	-13	-11	-10
0.12	0.13	11567	9960	8605	7458	544	468	405	351	505	435	376	326	1178	1014	876	759	-15	-13	-11	-9
0.13	**0.14**	11523	9884	8507	7345	542	465	400	345	503	432	372	321	1173	1006	866	748	-15	-12	-11	-9
0.14	0.15	11482	9814	8417	7241	540	461	396	341	502	429	368	316	1169	999	857	737	-14	-12	-11	-9
0.15	**0.16**	11444	9749	8333	7146	538	458	392	336	500	426	364	312	1165	993	849	728	-14	-12	-11	-9
0.16	0.17	11408	9688	8256	7058	536	456	388	332	498	423	361	308	1162	987	841	719	-14	-12	-10	-9
0.17	**0.18**	11375	9631	8184	6976	535	453	385	328	497	421	357	305	1158	981	833	710	-14	-12	-10	-9
0.18	0.19	11343	9578	8116	6899	533	450	382	324	496	418	355	301	1155	975	826	703	-14	-12	-10	-9
0.19	**0.20**	11313	9528	8052	6827	532	448	379	321	494	416	352	298	1152	970	820	695	-14	-12	-10	-9
0.20	0.21	11285	9481	7992	6760	531	446	376	318	493	414	349	295	1149	965	814	688	-14	-12	-10	-9
0.21	**0.22**	11258	9436	7936	6696	529	444	373	315	492	412	347	293	1146	961	808	682	-14	-12	-10	-8
0.22	0.23	11233	9393	7882	6636	528	442	371	312	491	410	344	290	1144	957	803	676	-14	-12	-10	-8
0.23	**0.24**	11208	9352	7831	6578	527	440	368	309	490	409	342	287	1141	952	797	670	-14	-12	-10	-8
0.24	0.25	11185	9314	7782	6524	526	438	366	307	489	407	340	285	1139	948	792	664	-14	-12	-10	-8
0.25	**0.26**	11163	9277	7736	6472	525	436	364	304	488	405	338	283	1137	945	788	659	-14	-12	-10	-8
0.26	0.27	11141	9241	7692	6423	524	435	362	302	487	404	336	281	1135	941	783	654	-14	-12	-10	-8
0.27	**0.28**	11121	9207	7649	6376	523	433	360	300	486	402	334	279	1132	938	779	649	-14	-12	-10	-8
0.28	0.29	11101	9174	7608	6330	522	431	358	298	485	401	332	277	1130	934	775	645	-14	-12	-10	-8
0.29	**0.30**	11082	9143	7569	6287	521	430	356	296	484	399	331	275	1128	931	771	640	-14	-12	-10	-8
0.30	0.31	11063	9112	7531	6245	520	428	354	294	483	398	329	273	1127	928	767	636	-14	-11	-9	-8
0.31	**0.32**	11046	9083	7495	6205	519	427	352	292	483	397	327	271	1125	925	763	632	-14	-11	-9	-8

0.32	0.33	11028	9055	7460	6167	519	426	351	290	482	396	326	269	1123	922	760	628	-14	-11	-9	-8
0.33	**0.34**	11012	9027	7426	6130	518	424	349	288	481	394	324	268	1121	919	756	624	-14	-11	-9	-8
0.34	0.35	10996	9001	7394	6094	517	423	348	287	480	393	323	266	1120	917	753	621	-14	-11	-9	-8
0.35	**0.36**	10980	8975	7362	6059	516	422	346	285	480	392	322	265	1118	914	750	617	-14	-11	-9	-8
0.36	0.37	10965	8950	7332	6026	516	421	345	283	479	391	320	263	1117	911	747	614	-14	-11	-9	-8
0.37	**0.38**	10950	8926	7302	5993	515	420	343	282	478	390	319	262	1115	909	744	610	-14	-11	-9	-8
0.38	0.39	10935	8903	7273	5962	514	419	342	280	478	389	318	260	1114	907	741	607	-14	-11	-9	-8
0.39	**0.40**	10921	8880	7246	5932	514	418	341	279	477	388	317	259	1112	904	738	604	-14	-11	-9	-7
0.40	0.41	10908	8858	7218	5902	513	417	339	278	477	387	315	258	1111	902	735	601	-14	-11	-9	-7
0.41	**0.42**	10895	8836	7192	5873	512	416	338	276	476	386	314	257	1109	900	732	598	-14	-11	-9	-7
0.42	0.43	10882	8815	7167	5846	512	415	337	275	475	385	313	255	1108	898	730	595	-14	-11	-9	-7
0.43	**0.44**	10869	8795	7142	5818	511	414	336	274	475	384	312	254	1107	896	727	593	-14	-11	-9	-7
0.44	0.45	10857	8775	7117	5792	511	413	335	272	474	383	311	253	1106	894	725	590	-14	-11	-9	-7
0.45	**0.46**	10845	8755	7094	5767	510	412	334	271	474	382	310	252	1104	892	722	587	-14	-11	-9	-7
0.46	0.47	10833	8736	7071	5742	509	411	332	270	473	382	309	251	1103	890	720	585	-14	-11	-9	-7
0.47	**0.48**	10821	8718	7048	5717	509	410	331	269	473	381	308	250	1102	888	718	582	-14	-11	-9	-7
0.48	0.49	10810	8700	7026	5694	508	409	330	268	472	380	307	249	1101	886	715	580	-14	-11	-9	-7
0.49	**0.50**	10799	8682	7005	5670	508	408	329	267	472	379	306	248	1100	884	713	577	-14	-11	-9	-7
0.50	0.51	10788	8665	6984	5648	507	407	328	266	471	379	305	247	1099	882	711	575	-14	-11	-9	-7
0.51	**0.52**	10778	8648	6963	5626	507	407	327	265	471	378	304	246	1098	881	709	573	-14	-11	-9	-7
0.52	0.53	10767	8631	6943	5604	506	406	326	264	470	377	303	245	1096	879	707	571	-14	-11	-9	-7
0.53	**0.54**	10757	8615	6924	5583	506	405	326	263	470	376	302	244	1095	877	705	569	-14	-11	-9	-7
0.54	0.55	10747	8599	6905	5562	505	404	325	262	469	376	302	243	1094	876	703	566	-14	-11	-9	-7
0.55	**0.56**	10737	8583	6886	5542	505	404	324	261	469	375	301	242	1093	874	701	564	-14	-11	-9	-7
0.56	0.57	10728	8568	6867	5523	504	403	323	260	469	374	300	241	1092	873	699	562	-14	-11	-9	-7
0.57	**0.58**	10718	8553	6849	5503	504	402	322	259	468	374	299	240	1091	871	697	560	-14	-11	-9	-7
0.58	0.59	10709	8538	6832	5484	504	401	321	258	468	373	298	240	1091	869	696	558	-14	-11	-9	-7
0.59	**0.60**	10700	8524	6814	5466	503	401	320	257	467	372	298	239	1090	868	694	557	-13	-11	-9	-7
0.60	0.61	10691	8510	6797	5448	503	400	320	256	467	372	297	238	1089	867	692	555	-13	-11	-9	-7
0.61	**0.62**	10682	8496	6781	5430	502	399	319	255	467	371	296	237	1088	865	690	553	-13	-11	-9	-7
0.62	0.63	10674	8482	6764	5412	502	399	318	255	466	371	295	236	1087	864	689	551	-13	-11	-9	-7
0.63	**0.64**	10665	8469	6748	5395	502	398	317	254	466	370	295	236	1086	862	687	549	-13	-11	-9	-7
0.64	0.65	10657	8455	6733	5379	501	398	317	253	466	369	294	235	1085	861	686	548	-13	-11	-8	-7
0.65	**0.66**	10649	8442	6717	5362	501	397	316	252	465	369	293	234	1084	860	684	546	-13	-11	-8	-7
0.66	0.67	10641	8430	6702	5346	500	396	315	251	465	368	293	234	1084	858	682	544	-13	-11	-8	-7
0.67	**0.68**	10633	8417	6687	5330	500	396	314	251	464	368	292	233	1083	857	681	543	-13	-11	-8	-7

0.68	0.69	10625	8405	6672	5314	500	395	314	250	464	367	291	232	1082	856	679	541	-13	-11	-8	-7
0.69	**0.70**	10617	8393	6658	5299	499	395	313	249	464	367	291	231	1081	855	678	540	-13	-11	-8	-7
0.70	0.71	10610	8381	6643	5284	499	394	312	248	463	366	290	231	1080	853	677	538	-13	-11	-8	-7
0.71	**0.72**	10602	8369	6629	5269	499	394	312	248	463	366	290	230	1080	852	675	537	-13	-11	-8	-7
0.72	0.73	10595	8357	6616	5254	498	393	311	247	463	365	289	230	1079	851	674	535	-13	-11	-8	-7
0.73	**0.74**	10588	8346	6602	5240	498	392	310	246	463	365	288	229	1078	850	672	534	-13	-11	-8	-7
0.74	0.75	10581	8335	6589	5226	498	392	310	246	462	364	288	228	1077	849	671	532	-13	-11	-8	-7
0.75	**0.76**	10574	8323	6576	5212	497	391	309	245	462	364	287	228	1077	848	670	531	-13	-10	-8	-7
0.76	0.77	10567	8313	6563	5198	497	391	309	244	462	363	287	227	1076	846	668	529	-13	-10	-8	-7
0.77	**0.78**	10560	8302	6550	5185	497	390	308	244	461	363	286	226	1075	845	667	528	-13	-10	-8	-7
0.78	0.79	10553	8291	6537	5172	496	390	307	243	461	362	286	226	1075	844	666	527	-13	-10	-8	-7
0.79	**0.80**	10546	8281	6525	5159	496	389	307	243	461	362	285	225	1074	843	664	525	-13	-10	-8	-7
0.80	0.81	10540	8270	6513	5146	496	389	306	242	460	361	285	225	1073	842	663	524	-13	-10	-8	-6
0.81	**0.82**	10533	8260	6501	5133	495	388	306	241	460	361	284	224	1073	841	662	523	-13	-10	-8	-6
0.82	0.83	10527	8250	6489	5121	495	388	305	241	460	360	283	224	1072	840	661	521	-13	-10	-8	-6
0.83	**0.84**	10520	8240	6477	5108	495	387	305	240	460	360	283	223	1071	839	660	520	-13	-10	-8	-6
0.84	0.85	10514	8230	6465	5096	494	387	304	240	459	360	282	223	1071	838	658	519	-13	-10	-8	-6
0.85	**0.86**	10508	8221	6454	5084	494	387	303	239	459	359	282	222	1070	837	657	518	-13	-10	-8	-6
0.86	0.87	10502	8211	6443	5072	494	386	303	239	459	359	281	222	1069	836	656	517	-13	-10	-8	-6
0.87	**0.88**	10496	8202	6432	5061	494	386	302	238	459	358	281	221	1069	835	655	515	-13	-10	-8	-6
0.88	0.89	10490	8192	6421	5049	493	385	302	237	458	358	280	221	1068	834	654	514	-13	-10	-8	-6
0.89	**0.90**	10484	8183	6410	5038	493	385	301	237	458	357	280	220	1068	833	653	513	-13	-10	-8	-6
0.90	0.91	10478	8174	6399	5027	493	384	301	236	458	357	280	220	1067	832	652	512	-13	-10	-8	-6
0.91	**0.92**	10472	8165	6389	5016	492	384	300	236	457	357	279	219	1066	831	651	511	-13	-10	-8	-6
0.92	0.93	10467	8156	6378	5005	492	384	300	235	457	356	279	219	1066	831	650	510	-13	-10	-8	-6
0.93	**0.94**	10461	8147	6368	4994	492	383	299	235	457	356	278	218	1065	830	648	509	-13	-10	-8	-6
0.94	0.95	10456	8139	6358	4983	492	383	299	234	457	356	278	218	1065	829	647	507	-13	-10	-8	-6
0.95	**0.96**	10450	8130	6348	4973	491	382	298	234	457	355	277	217	1064	828	646	506	-13	-10	-8	-6
0.96	0.97	10445	8122	6338	4963	491	382	298	233	456	355	277	217	1064	827	645	505	-13	-10	-8	-6
0.97	**0.98**	10439	8113	6328	4952	491	382	298	233	456	354	276	216	1063	826	644	504	-13	-10	-8	-6
0.98	0.99	10434	8105	6319	4942	491	381	297	232	456	354	276	216	1063	825	643	503	-13	-10	-8	-6
0.99	**1.00**	10429	8097	6309	4932	490	381	297	232	456	354	276	215	1062	825	642	502	-13	-10	-8	-6
1.00	1.01	10423	8089	6300	4923	490	380	296	231	455	353	275	215	1061	824	642	501	-13	-10	-8	-6
1.01	**1.02**	10418	8081	6290	4913	490	380	296	231	455	353	275	215	1061	823	641	500	-13	-10	-8	-6
1.02	1.03	10413	8073	6281	4903	490	380	295	231	455	353	274	214	1060	822	640	499	-13	-10	-8	-6
1.03	**1.04**	10408	8065	6272	4894	489	379	295	230	455	352	274	214	1060	821	639	498	-13	-10	-8	-6

1.04	1.05	10403	8057	6263	4884	489	379	294	230	454	352	274	213	1059	821	638	497	-13	-10	-8	-6
1.05	**1.06**	10398	8050	6254	4875	489	379	294	229	454	352	273	213	1059	820	637	496	-13	-10	-8	-6
1.06	1.07	10393	8042	6245	4866	489	378	294	229	454	351	273	213	1058	819	636	495	-13	-10	-8	-6
1.07	**1.08**	10388	8035	6236	4857	488	378	293	228	454	351	272	212	1058	818	635	495	-13	-10	-8	-6
1.08	1.09	10384	8027	6228	4848	488	377	293	228	454	351	272	212	1057	817	634	494	-13	-10	-8	-6
1.09	**1.10**	10379	8020	6219	4839	488	377	292	228	453	350	272	211	1057	817	633	493	-13	-10	-8	-6
1.10	1.11	10374	8013	6211	4830	488	377	292	227	453	350	271	211	1056	816	632	492	-13	-10	-8	-6
1.11	**1.12**	10369	8005	6202	4821	488	376	292	227	453	350	271	211	1056	815	632	491	-13	-10	-8	-6
1.12	1.13	10365	7998	6194	4813	487	376	291	226	453	349	271	210	1055	814	631	490	-13	-10	-8	-6
1.13	**1.14**	10360	7991	6186	4804	487	376	291	226	453	349	270	210	1055	814	630	489	-13	-10	-8	-6
1.14	1.15	10356	7984	6178	4796	487	375	290	226	452	349	270	210	1055	813	629	488	-13	-10	-8	-6
1.15	**1.16**	10351	7977	6170	4788	487	375	290	225	452	348	270	209	1054	812	628	488	-13	-10	-8	-6
1.16	1.17	10347	7970	6162	4779	487	375	290	225	452	348	269	209	1054	812	627	487	-13	-10	-8	-6
1.17	**1.18**	10342	7964	6154	4771	486	374	289	224	452	348	269	208	1053	811	627	486	-13	-10	-8	-6
1.18	1.19	10338	7957	6146	4763	486	374	289	224	452	348	268	208	1053	810	626	485	-13	-10	-8	-6
1.19	**1.20**	10334	7950	6138	4755	486	374	289	224	451	347	268	208	1052	810	625	484	-13	-10	-8	-6
1.20	1.21	10329	7943	6131	4747	486	374	288	223	451	347	268	207	1052	809	624	483	-13	-10	-8	-6
1.21	**1.22**	10325	7937	6123	4739	486	373	288	223	451	347	267	207	1051	808	624	483	-13	-10	-8	-6
1.22	1.23	10321	7930	6115	4732	485	373	288	222	451	346	267	207	1051	808	623	482	-13	-10	-8	-6
1.23	**1.24**	10317	7924	6108	4724	485	373	287	222	451	346	267	206	1051	807	622	481	-13	-10	-8	-6
1.24	1.25	10312	7918	6101	4716	485	372	287	222	450	346	267	206	1050	806	621	480	-13	-10	-8	-6
1.25	**1.26**	10308	7911	6093	4709	485	372	287	221	450	346	266	206	1050	806	620	480	-13	-10	-8	-6
1.26	1.27	10304	7905	6086	4701	485	372	286	221	450	345	266	205	1049	805	620	479	-13	-10	-8	-6
1.27	**1.28**	10300	7899	6079	4694	484	371	286	221	450	345	266	205	1049	804	619	478	-13	-10	-8	-6
1.28	1.29	10296	7893	6072	4687	484	371	286	220	450	345	265	205	1048	804	618	477	-13	-10	-8	-6
1.29	**1.30**	10292	7886	6065	4679	484	371	285	220	450	345	265	204	1048	803	618	477	-13	-10	-8	-6
1.30	1.31	10288	7880	6058	4672	484	371	285	220	449	344	265	204	1048	802	617	476	-13	-10	-8	-6
1.31	**1.32**	10284	7874	6051	4665	484	370	285	219	449	344	264	204	1047	802	616	475	-13	-10	-8	-6
1.32	1.33	10280	7868	6044	4658	483	370	284	219	449	344	264	203	1047	801	615	474	-13	-10	-8	-6
1.33	**1.34**	10277	7863	6037	4651	483	370	284	219	449	343	264	203	1046	801	615	474	-13	-10	-8	-6
1.34	1.35	10273	7857	6030	4644	483	369	284	218	449	343	263	203	1046	800	614	473	-13	-10	-8	-6
1.35	**1.36**	10269	7851	6024	4637	483	369	283	218	449	343	263	203	1046	799	613	472	-13	-10	-8	-6
1.36	1.37	10265	7845	6017	4630	483	369	283	218	448	343	263	202	1045	799	613	472	-13	-10	-8	-6
1.37	**1.38**	10261	7839	6010	4624	483	369	283	217	448	342	263	202	1045	798	612	471	-13	-10	-8	-6
1.38	1.39	10258	7834	6004	4617	482	368	282	217	448	342	262	202	1045	798	611	470	-13	-10	-8	-6
1.39	**1.40**	10254	7828	5997	4610	482	368	282	217	448	342	262	201	1044	797	611	469	-13	-10	-8	-6

1.40	1.41	10250	7822	5991	4604	482	368	282	216	448	342	262	201	1044	797	610	469	-13	-10	-8	-6
1.41	**1.42**	10247	7817	5985	4597	482	368	281	216	448	341	261	201	1043	796	609	468	-13	-10	-8	-6
1.42	1.43	10243	7811	5978	4591	482	367	281	216	447	341	261	201	1043	795	609	467	-13	-10	-8	-6
1.43	**1.44**	10239	7806	5972	4584	481	367	281	216	447	341	261	200	1043	795	608	467	-13	-10	-8	-6
1.44	1.45	10236	7801	5966	4578	481	367	281	215	447	341	261	200	1042	794	608	466	-13	-10	-8	-6
1.45	**1.46**	10232	7795	5960	4572	481	367	280	215	447	341	260	200	1042	794	607	466	-13	-10	-8	-6
1.46	1.47	10229	7790	5954	4565	481	366	280	215	447	340	260	199	1042	793	606	465	-13	-10	-8	-6
1.47	**1.48**	10225	7785	5948	4559	481	366	280	214	447	340	260	199	1041	793	606	464	-13	-10	-7	-6
1.48	1.49	10222	7779	5941	4553	481	366	279	214	447	340	260	199	1041	792	605	464	-13	-10	-7	-6
1.49	**1.50**	**10219**	**7774**	**5936**	**4547**	**480**	**366**	**279**	**214**	**446**	**340**	**259**	**199**	**1041**	**792**	**604**	**463**	**-13**	**-10**	**-7**	**-6**

REFERENCES

1. **Thruway Authority Announces Highway Speed E-ZPass Lanes Open** prepared by New York State Thruway Authority May 2010 http://readme.readmedia.com/Thruway-Authority-Announces-Highway-Speed-E-ZPass-Lanes-Open/1260033
2. **Woodbury Mobility Improvement Project: About the Project** http://www.thruway.ny.gov/projectsandstudies/projects/woodbury/about.html
3. **Woodbury Highway Speed E-ZPass: The Open Road is Green** as presented at the IBTTA Raleigh Conference. Raleigh 2010 http://www.ibtta.org/files/PDFs/MacNeil_Mike.pdf
4. **Woodbury Highway Speed E-ZPass: IBTTA Raleigh Conference** as presented at the IBTTA Raleigh Conference. Raleigh 2010 http://www.ibtta.org/files/PDFs/McLaughlin_Tom.pdf
5. **Yonkers Contracting Finishing Work on Highway Speed E-ZPass Project** prepared by John Jordon. May 2010 http://cicnysb.firstdaystory.com/full.php?sid=1413&current_edition=2010-05-01
6. **Woodbury, NY - Thruway's 1st Highway-speed E-ZPass Toll Booths Are Open** prepared by "Vos iz Neias?" May 2010 http://www.vosizneias.com/55601/2010/05/14/woodbury-ny-thruways-1st-highway-speed-e-zpass-toll-booths-are-open
7. **Making Every Dollar Count** as prepared by the Metropolitan Transportation Authority. January 2010. http://www.mta.info/news/pdf/pdf%20100%20days%20lo%20res.pdf
8. **New York's MTAB&T to do all-electronic toll pilot at Henry Hudson Bridge plaza** as prepared by TollRoadNews. September 2010. http://www.tollroadsnews.com/node/4916
9. **(Cashless) All-Electronic Tolling Moves Forward** as prepared by the Metropolitan Transportation Authority. 2010 http://www.mta.info/news/stories/?story=108
10. **All-Electronic Tolling Coming to the Henry Hudson Bridge** as prepared by the Metropolitan Transportation Authority. 2010 http://www.mta.info/news/stories/?story=9
11. **M.T.A. to Test Eliminating Tollbooths, Relying on E-ZPass** as written in the New York Times. Grynbaum. January 2010 http://www.nytimes.com/2010/01/15/nyregion/15tolls.html
12. **ORT reduces accidents at toll plazas** http://www.traffictechnologytoday.com/features.php?BlogID=330
13. **Furor in Texas over "free rides" on open road and all-electronic toll systems** http://www.tollroadsnews.com/node/4838
14. **NCHRP: Estimating Toll Road Demand and Revenue** as prepared by David Kriger, Suzette Shiu, and Sasha Naylor; Transportation Research Board of the National Academies. Synthesis 364, Washington D.C. 2006

15. **Highway Statistics 2004 and 2008–** Federal Highway Administration (FHWA). Office of Highway Policy Information, Federal Highway Administration, U.S. Department of Transportation. Washington, D.C. 2005, 2009.
16. **An Evaluation of Alternative Transportation Financing Approaches.** Plotnikov, Michael, Ph.D. Proposal, University of Massachusetts, Amherst, January, 2011
17. **Massachusetts Turnpike Authority Annual Report** as prepared by the Massachusetts Turnpike Authority. March 29, 2010
18. **Mass Pike Board Majority Want Taxes not Tolls** as prepared by Toll Road News. January, 2007
19. **The Open Road: The Region's Coming Toll Collection Revolution.** Siegel, Jennifer. New York, New York. May, 2004.