Crossing a Contested River: Assessing Options for Trans-Hudson River Infrastructure by Considering Conflicting Politics, Funding Sources, and Lead Agencies

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The Issue: NJ-NY Hudson River Crossings

The relationship between the State of New Jersey and the City of New York has historically been both symbiotic and adversarial. The world alpha-city of New York (particularly the extremely dense island of Manhattan) represents the job epicenter of America’s largest urban agglomeration from Boston to Washington DC (map below).¹ Concurrently, New Jersey has developed into the densest state in the United States (1,185 residents per square mile), consisting mostly of bedroom suburbs for commuters, primarily to New York City. Media pundits and politicians will often portray the two states as rivals competing in an “economic war.”² Yet in reality they benefit from one another; contributing homes (New Jersey) and jobs (New York City) ultimately creating a stronger metropolitan economy. Fiscally, New York City benefits from additional city and state income taxes collected on these jobs; and New Jersey collects property tax revenues from those who choose to live outside of the expense of the city, in the state’s suburbs.

Although the residence-employment or suburban-urban relationship between New Jersey and New York has existed for some 150 years, it has been reshaped over time through changes in economics, politics, and transportation patterns. However, one thing that has remained constant throughout this history is the need for people to cross the Hudson River from homes in New Jersey to jobs in New York. Over time, six NJ-NY Hudson River crossings have come to fruition. Tellingly, three rail

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tunnels were completed from 1900-1910, and two tunnels and one bridge catering to car traffic were opened from 1925-1966. In the past 50+ years, while population and congestion have continued to rise, no new infrastructure has been constructed to bolster this interstate connection. It is the necessity of this physical movement across state lines and the challenging Hudson River that sets the stage for some of the most expensive, contested, politicized, and interesting transportation planning issues in America. The limited number of Hudson crossings stands in stark contrast to the only slightly narrower East River, which is wholly contained within the state of New York. Without the Hudson River’s burden of inter-jurisdictional politics and pressures, the East River is crossed by 10 bridges and 13 tunnels, with a crossing opening as recently as 1989.

No project better exhibits the external complications of trans-Hudson River transportation planning than the recently cancelled Access to the Region’s Core (ARC) Tunnel. Looked at purely as a transportation project the tunnel seemed like a great solution; designed to relieve current and projected bottlenecks, improve overall network efficiencies, increase public transit ridership, be more cost efficient than 100+ other engineering options, align multiple ear-marked funding sources, and had general public approval. However, a series of events related to political, financial, and bureaucratic agencies derailed the biggest infrastructure project in America only months after groundbreaking.

3 This map as well as other maps in document (unless otherwise noted) created by paper’s author using Google Maps. Dec 12, 2013. Basemaps accessed at www.google.com
It is this juxtaposition between the expectations of the ARC Tunnel’s development and the realities of ARC Tunnel’s swift cancellation that make it a great framework for lesson-learning and analyzing alternatives. And future solutions are needed. Because, while the ARC Tunnel is now just a memory, the very real transportation issues of moving from New Jersey to New York City remain. A series of studies have analyzed the post-ARC alternatives, most notably the ARC Alternative Transit Project: Examining Cross-Hudson Transit Options in the Wake of the ARC Failure, completed by a Columbia University studio in coordination with New York City Department of City Planning. This report analyzed two real world proposed alternatives known as the Gateway project and No. 7 Line Subway Extension on their transportation merits. The report utilized a matrix of transit indicators, such as frequency, one-seat ride, and operational costs to choose a preferred alternative. While this analysis is informative, it glides past the paramount issues of politics, funding sources, and conflicting agencies, which actually derailed the superior transportation project of the ARC Tunnel. To begin, this paper provides context for the trans-Hudson River transportation issue, breaks down the ARC Tunnel story, and presents the proposals and findings of the ARC Alternative Transit Project report. However, this simply sets up an exploration of and emphasis on navigating conflicting politics, understanding sources of funds, and simplifying multi-agency interaction, which are critical steps in choosing and implementing the best trans-Hudson transportation solution.

**Geographic Context**

A major challenge in the complex transportation situation between New Jersey and New York City is the land and water characteristics of the region. The most prominent feature is the Hudson River, a 315 mile waterway that runs from upstate Newcomb, New York down to the Upper New York Bay at the Atlantic Ocean. The tidal waterway was formed roughly 20,000 years ago and its connection from the Erie Canal to the Atlantic Ocean was vital for the growth of dozens of America’s cities. The river continues to

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play a critical role in the movement of goods and people, as evidenced by the active shipping vessels, cruise ships, ferry boats, and recreational vehicles filling the river each day. The “North River” section (actually the southernmost portion of the river) is the most critical for the NJ-NY transportation issue as it divides the Peninsula of Hudson County in New Jersey from the island of Manhattan in New York.

The width of the “North River” section of the Hudson River, ranging from 1 mile to 1.5 miles across, stands as a staggering obstacle for interstate travel. This combined with the need to allow large vessels to traverse the river, has forced engineers to create innovative infrastructure marvels to overcome it. By comparison the Charles River in Boston is roughly half the width and can be crossed by bridges of varied height due to limited large vessel usage. The two proven transportation solutions for traversing the Hudson River geographic conundrum have been by tunneling through the riverbed of the Hudson River or via raised bridge at the minimum underpass height of 200 ft. The bridge solution was deemed infeasible for the southern portion of the river, as it would require elongated ramps to get to a necessary height and massive building displacement, thus the Holland and Lincoln Tunnels were the preferred alternatives.

Further north, the George Washington Bridge was made possible by the steep slopes of the Palisades in New Jersey and the Manhattan Ridge in New York City. These geographic conditions continue to greatly limit interstate access, create transportation bottlenecks, and force expensive infrastructure projects to traverse.

**Historic Development Context**

Driven by economic prosperity and proximity to the job center of New York; New Jersey saw a residential population boom from just under 1,000,000 residents in 1870 to 4,000,000 residents by the onset of WWII. Critical to this growth was the construction of three interstate rail tunnels by the

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Pennsylvania Railroad (contemporary NJ Transit system) and H & M Railroad (contemporary PATH system), from 1907-1910. These tunnels, known as the Downtown Hudson Tubes, Uptown Hudson Tubes, and North River Tunnels provided unprecedented rapid transit back-and-forth from New Jersey to New York. While ferries already provided steady connections between coastal cities, these trains allowed rapid movement from Manhattan to Jersey City-Hoboken-Newark to outlying New Jersey municipalities. Based on this heightened speed and access to Manhattan, a vast majority of the growing New Jersey population clustered in transit rider towns along routes of the two major train companies (density map below). 7

While train lines and the first round of Hudson River crossings bolstered the economic relationship between New Jersey and New York, a series of occurrences after World War II exaggerated their homework inter-relatedness. During these years transportation patterns in the NJ-NY area were fundamentally altered by the following transport occurrences: a general rise in automobile popularity; multiple New Jersey highway projects; and the opening of the car-oriented Holland Tunnel (1927), Lincoln Tunnel (1937-1945), and George Washington Bridge (1931 and 1962). Additional economic and housing trends such as the deindustrialization of New Jersey’s own cities, financing practices that increased homeownership, and consumer taste for larger homes lead to a decentralization of the New Jersey population. Ultimately this led to a prioritization of the automobile over public transit as the primary New Jersey to New York commuter mode. The repercussions

of this shift were congested car traffic across the Hudson River, the ceased operations of the H&M Railroad in 1962, and the bankruptcy of the expansive Pennsylvania Central Railroad in 1970.

**Current Transportation Context**

Based on high residential and job density, combined with limited Hudson River crossings, New Jersey and New York suffer from some of the most congested commutes in America. Everyday 370,000 commuters make the trip from New Jersey to New York City, which is 9% of New Jersey working residents and 10% of New York City’s job base. On the “reverse commute” 120,000 New York City residents cross the river for employment in New Jersey which is 3% of all New Jersey jobs. In total this equals nearly one million trips across the Hudson River each day from home to work and back.

The extremely high demand and limitation to three car traffic crossings results in some of the busiest roadways in the world. The double-decked suspension George Washington Bridge, connecting Bergen County to upper Manhattan, is the most traversed automobile bridge in the world with 102 million car trips annually. Equally congested are the Lincoln and Holland Tunnels carrying 108,000 and 98,000 vehicles daily, respectively. Increasing toll prices to above $10 in recent years has not tempered car traffic flows, as each remains beyond peak capacity at rush hour. Each year millions of work hours are lost to this congestion, negatively impacting the economic vitality of the region and quality of life. As NJ.com reports, “According to the US Census New Jersey, "mega commuters" — those with a commute of an hour of more — make up more than 1 in 7 commuters, according to findings by the U.S. Census Bureau released today. At 14.8%, the Garden State had the second-highest percentage of commuters making mega commutes, behind only New York, which had 16.2%.”

While this congestion is most obvious at the river crossings, it has a tremendous ripple effect in traffic patterns on both the New Jersey and New York City sides.

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This tremendous car traffic and abundance of rail infrastructure has allowed the NJ-NY metro-region to maintain the nation’s highest rates of public transportation usage. Those working in New York City represent the only commuter group in the nation where public transit riders outweigh car commuters in an urban region.\textsuperscript{11} The system is a complex combination of multiple ride types governed by different agencies including: NJTransit buses, light rail, and trains; MTA buses and subways; the PATH system of the NY-NJ Port Authority; the Metro North train system, the Long Island Railroad, and various ferry companies. By utilizing these systems commuters are able to avoid much of the congestion, slowdown, and stress of automobile traffic. However, this benefit is limited for New Jersey residents commuting to Manhattan as both bus and railways reach a bottleneck at the limited Hudson River crossings. This poses a huge transportation issue as only 23 trains can cross the Hudson River during peak hours. The result is absolute maximum peak hour ridership, crowded trains, and multi-seat rides. Further pressurizing the situation is the anticipated growth in demand as The New York Times reports, “those tracks now operate at capacity, and demand for mass transit between New Jersey and Manhattan is expected to grow 38 percent by 2030.”\textsuperscript{12}

Literary Review of Issues: The Access to the Region’s Core (ARC) Tunnel

The ARC Tunnel’s rise and fall provides an illustrative case study for why volatile politics and the complexities of dealing with multiple government agencies can be paramount to transport efficiencies in

transportation planning. Additionally, the size, scale, and cost of the project garnered tremendous media attention and expert input. Therefore, analyzing the public reactions and analytic research that came out of the ARC Tunnel saga provides a useful literature review for assessing the feasibility of alternatives. To set the stage for the significance of the ARC Tunnel drama, a quote from former U.S Senator Frank Lautenberg in 2012, “This was the most important transportation project of our time. New Jerseyans who commute into New York City already face near daily struggles with an overburdened rail system and jammed highways, bridges, and tunnels. We are at capacity, and our only hope for relief in this decade was ARC. Construction had already started and thousands of workers were about to be hired when the governor killed the project. The future of New Jersey’s commuters was sacrificed for the short-term political needs of the governor.”

The Access to the Region's Core was a proposed commuter rail project to increase service capacity on at-capacity New Jersey Transit (NJTransit) trains. The ARC project would have created infrastructure including a new rail yard, new rail track, a new multi-modal station adjacent to New York Penn Station, and most critically a new tunnel under the Hudson River. The goal of the project was to provide additional train service from Secaucus Junction in New Jersey, through two new tunnels bored deep below the Hudson, ending at a new rail station 100 feet below midtown Manhattan. The tunnel would consist of three costly sections: first under the Palisade cliffs of New Jersey,
second under the Hudson Riverbed, and third under the streets of Manhattan. Ultimately, this would have provided the first cross-Hudson capacity enhancement to the train system connecting the homes of New Jersey to the jobs of New York City in 100 years.\textsuperscript{15}

As discussed, current infrastructure, including tunnels and stations, could not handle increases in trains or routes. Completion of the ARC project would have more than doubled capacity for rush hour trains in and out of Manhattan, going from 23 trains to 48 trains during peak transit hours. Five additional rail lines would have offered one-seat service to Manhattan, eliminating the need for a transfer at Newark Penn Station or Secaucus Junction. This represents a 97\% reduction in the number of necessary commuter transfers.\textsuperscript{16} Said another way, this would have cut the number of rail transfers on NJ Transit trains from 32,100 to 1,000 per day, saving commuters 23 minutes in travel time each way.\textsuperscript{17} If one assumes 250 work days in a year, this represents a total of 5,750,000 hours saved for the annual commute, which workers could use for additional productivity or the activities of daily life.

This transportation planning decision came from a Major Investment Study commissioned by the Port Authority of New York and New Jersey (The Port Authority). The Port Authority, created in 1921 as a joint venture between the two states to manage interstate movement, currently operates and collects fees for the Holland Tunnel, Lincoln Tunnel, George Washington Bridge, and PATH system. The Port Authority board is jointly controlled by the Governors of New Jersey and New York. The agency realized the unsustainable condition of the combined transportation network in 1993 and commissioned the \textit{Access to Regions Core Major Investment Study}. The solutions analyzed in the rigorous study included varied options, from new bridges to ferries to a railroad tunnel. It was ultimately determined that a railroad tunnel would be the most efficient solution by eliminating the existing bottleneck created by a lone commuter train tunnel. It is for these reasons that the ARC Tunnel project was deemed the best of 137 different trans-

\textsuperscript{15} Route Map. Access at \url{http://www.njfuture.org/wp-content/uploads/2010/09/arc-section-2-1.gif}
\textsuperscript{16} ARC Alternative Paper. Columbia University. Ibid. Hyperlink provided above.
\textsuperscript{17} Magyar, Mark. Ibid.
Hudson transportation solutions. So how did this transportation project go from a generation-altering solution to groundbreaking to immediate cancellation?

The findings of the ARC study set in motion an unbelievable series of events which illustrate the supreme role non-transportation issues had in the supposed “transit planning” project. Throughout the rise and fall of the ARC tunnel project, the underlying issue of whether New Jersey and New York are economic partners or rivals plays a critical role. Based on the complexities and volume of events this story is most easily understood in a timeline format. To emphasize the confusion of the events, the major forces that canceled the project are color-coded as: politicians, cost estimates, and various government agencies.

**Major Events in the ARC Tunnel Project: From Launch to Shutdown**

*May 2004:* New Jersey Gov. James E. McGreevey announces a renewed push for the proposed two rail tunnels, now projected to cost $5 billion.

*May 2005:* New York Gov. George Pataki also declares support for the tunnel project; an endorsement that New Jersey officials praise as a major milestone in the project’s completion.

*July 2005:* NJ Transit chooses a route for the twin rail tunnels that will lead to a new train station in Manhattan, near the Macy’s flagship. The total project cost is updated to about $6 billion. This decision comes under criticism from some groups who want the tunnels to continue to Grand Central Terminal, thus providing New Jersey commuters with access to offices on Manhattan’s East Side. Transit officials say the Grand Central extension is blocked by water infrastructure and is too expensive.

*July 2006:* The Federal Transit Administration (FTA) permits preliminary engineering to begin on the new trans-Hudson tunnels. A $1 billion authorization for the megaproject is approved by The Port Authority of New York and New Jersey.

*May 2007:* The subsequent New Jersey Governor, John Corzine receives approval to use federal highway aid to help pay for the tunnels when the North Jersey Transportation Planning Authority votes to allow his
administration access to $1 billion earmarked for highway congestion relief. The highway program will be repaid over the next 10 years with money from the state transportation trust fund.

**November 2007:** The Port Authority of New York and New Jersey increases its commitment from $2 billion to $3 billion for the trans-Hudson River tunnels. This funding will come from increased bridges and tunnels tolls and higher PATH fares.

**November 2008:** The FTA directs New Jersey officials to increase estimates for the tunnels to $8.7 billion for potential increases in construction costs and interest rates during the 10 year construction period.

**January 2009:** The federal government provides final approval or “record of decision” for the tunnel project. The approval by the Federal Transit Administration, allows New Jersey to apply for $3 billion in federal funding. The Port Authority of New York and New Jersey and the federal government will each put in $3 billion for the massive public works project. New Jersey’s share, following the increased cost is $2.7 billion.

**June 2009:** Tunnel advocates gather behind a warehouse in North Bergen, New Jersey for a ceremonial groundbreaking. The tunnel project is hailed as a mass transit success for future generations to come and a major boost to the NJ-NY economy.

**November 2009:** Gov. Jon Corzine calls for “transparency and accountability” in funding NJ Transit’s now $8.7 billion commuter rail tunnel to New York City. State Comptroller Matthew Boxer is now mandated to review all financial audits of the tunnel to ensure its solvency, and determine if oversight is needed to keep the tunnel within budget. Boxer will also maintain oversight of the project’s funding from outside agencies.

**December 2009:** The NJ Transit board of directors approves the first tunneling contract.

**June 2010:** FTA administrator Peter Rogoff suggests the tunnel may cost as much as $9 to $10 billion.

**September 2010:** Worried that the project may go as much as $2.7 billion over budget, Gov. Chris Christie shuts down all tunnel work and suspends additional contract bids on the project for a 30-day cost review.\(^{18}\)

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October 2010: The ARC tunnel project is officially canceled by Governor Chris Christie, citing the possibility of total project costs up to $14 billion. He also states that the State of New Jersey is wholly responsible for the payment of any cost overruns beyond the $8.7 billion mark. At this point $600 million had been spent.\textsuperscript{19}

November 2010: US Secretary of Transportation Ray LaHood demanded the state of New Jersey return $271 million that it had received for the project by December of 2010. Governor Chris Christie rejects this agreement and begins legal proceedings.

January 2011: Governor Christie redirects a portion of the Port Authority funds to build and repair infrastructure wholly situated in New Jersey, an unusual precedent for the Port Authority funds. A majority of the explicit projects are highway and automobile bridge projects with a lesser portion of the money set to go to NJ Transit. A large portion ended up in the New Jersey Transportation Trust Fund, which is typically paid out of the state’s low gas tax.\textsuperscript{20}

April 2011: The Federal Transit Administration rejects New Jersey’s legal challenge, and begins to charge interest on the debt owed for the tunnel project.

September 2011: The FTA and NJT reach a deal where $95 million would be paid back, while waiving penalties and interest. $128 million of the remaining dollars were mandated to be spent on transit projects.

From the point of cancellation, a political and media blame game erupted over the actual motivation for ending the project and what would happen to the earmarked dollars. Republican politicians from New Jersey, led by Chris Christie, stated the rising cost estimate, and more critically who would pay for it, were the lynchpins that derailed the project. Two points of contestation Christie had with the cost breakdown (shown on the following page\textsuperscript{21}) were the glaring omissions of New York City or State and New

\textsuperscript{19} Pillets, Jeff. State wants Refund for $161.9M Tunnel Insurance. NorthJersey.com. \url{http://www.northjersey.com}


Jersey’s role as the sole agency responsible for cost overruns.\textsuperscript{22} He also stated that the underestimated price tag for the project was politically motivated, claiming his Democratic predecessor reduced project estimates for a quick political win. Christie was quoted "It went from $5 billion to $8.7 billion in what was clearly a rush by the Corzine administration to have gold shovels and put them the ground and try to get (former Gov. Jon) Corzine re-elected. That obviously was less than successful. And I’m concerned that their evaluation of the price of this project was as successful as his re-election campaign was…. And if (the New Jersey Turnpike Authority) can’t pay for it, then we'll have to consider other options."\textsuperscript{23}

Within the Governor’s statement, all three of the critical cancellation factors are at play; with politics and an agency’s responsibilities being muddled into fluctuating costs. While the Governor’s grievances about the unfair negotiated terms of cost overruns were validated by the bipartisan PolitiFact, this point illustrates the importance of time scale in a megaproject.\textsuperscript{24} The ARC Tunnel spanned multiple governorships from opposite political parties and was thus susceptible to the variability of the political cycle. Therefore, what was deemed an acceptable deal for NJ’s Democratic Governor Corzine, who considered New York a metropolitan partner; was deemed unacceptable to NJ’s Republican Governor Christie who considered New York only a partner if they contributed to the tunnel’s funding.

\textsuperscript{23} Fleisher, Lisa. Ibid.
\textsuperscript{24} Wichert, Bill. Ibid.
Democratic leaders contended that Governor Christie manipulated the truth, by overstating cost estimates to kill the project for political gain. As the left-leaning transit advocacy website Streets Blog contended, “It was never about cost overruns. It was never about New Jersey’s share of the price tag. Chris Christie’s decision to kill the ARC tunnel under the Hudson River was always about two, and only two, things: the governor’s unwillingness to raise the state’s rock-bottom gas tax and his desire to make a name for himself among national Republicans.\textsuperscript{25} A few damning reports from the \textit{New York Times} and federally run Government Accountability Office (GAO) came out in the months following the cancellation. \textit{The Times} stated that the ARC tunnel’s cost estimate had not gone up in two years and that there was no expectation that it would ever exceed $10 billion, directly contrasting Christie’s claim. The GAO found that New Jersey was responsible for 14.4\% of the tunnel’s budget not the 70\% Governor Christie claimed it would owe. This accounting discrepancy is mostly tied to the Governor’s view of the complex agencies at play, counting the Port Authority and an Amtrak bridge as “New Jersey” funds.\textsuperscript{26} Again the role of the ARC Tunnel’s three derailing factors are evident; as Democrats claimed the real motivation for the ARC’s cancellation was not cost, but a misrepresentation of a regulatory agency’s funding role by Chris Christie, in order to garner political support from his state’s car-using constituency.

The primary takeaway from the ARC melodrama is that transportation planning does not exist in a vacuum. In the hostile aftermath of the projects cancellation, neither Republicans nor Democrats ever questioned the transportation validity of the project. Instead, politics, funding sources, and agency conflict dominated the debate. Ultimately the casualty was not just the ARC Tunnel project, but also the residents and businesses of New Jersey and New York. However, as the director of the Regional Plan Association Thomas Wright stated about the current situation, “This doesn’t get us any closer to building the new rail tunnel we need. Instead of arguing, we should be bringing people together, but that just hasn’t been

\textsuperscript{25} Kazis, Noah. Independent Federal Report Confirms: Christie Lied. Streets Blog. \url{http://www.streetsblog.org/2012/04/10}

\textsuperscript{26} Zernike, Kate. Ibid.
And the need for a solution is very real, as the future growth of the New Jersey and New York economies is very much at risk.

**Proposed Alternatives**

While at first glance the ARC Tunnel saga is a calamitous failure of transport planning, there are many useful lessons that could help another project come to completion. Primarily, it is critical to remember that politics, financial sources, and agency interactions are often more important than increased efficiencies, reductions in congestion, or projected economic gains.

Therefore, I will explain and reevaluate the same two proposed alternatives (Gateway and 7 Line Extension) as the transit engineering focused *ARC Alternative Transit Project*. This report weighed each option’s connectivity, frequency, capacity, speed, travel time, one-seat ride, ride cost, operational cost, and completion date (“Transportation Pros and Cons” visible in this report’s matrix above).28 While the report briefly mentions cost, funding sources, and partnerships in their analysis, there was little substantial analysis undertaken. However, my metrics for selection and implementation strategy will consider the following as paramount: political volatility, estimated costs and funding sources, and the level of logistical cumbersomeness of the agencies involved (“External Pros and Cons”). Because as Michael Drewniak, Gov. Christie’s spokesman, stated, "No matter what projects are proposed or under consideration now or in the future, the governor will not sign New Jersey up for another such project unless there is a truly equitable cost-sharing structure, with participation from all the benefiting parties, including New York."29

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27 Magyar. Ibid.
28 Columbia University. Ibid.
Alternative 1: The Amtrak Gateway Project
The first alternative being strongly considered in consolation for the ARC project is known as the Gateway project. Unveiled in 2011, after the ARC Tunnel’s cancellation the project is a joint effort between Amtrak and NJ Transit to alleviate the same Hudson River bottleneck. Amtrak, a government owned train operator since 1971, primarily handles long-distance interstate travel, with their most profitable route from Washington DC to Baltimore to Philadelphia to Newark to New York to Boston. Amtrak plans to upgrade this corridor into a high-speed rail line; however this is technically infeasible due to the limitations of the single North River tunnel. Therefore, this project would create a new tunnel parallel to the existing Newark to New York train tunnel (passing but not stopping at Secaucus Junction), culminating in a new Moynihan Station (in the repurposed James Farley Post Office) next to NY Penn.

Transportation Pros
The Amtrak Gateway project would increase the volume of NJ Transit (NJ-NY commuters) and Amtrak (inter-city travel) trains that could cross the Hudson River. The number of NJ Transit peak time trains would rise by 13 (as opposed to ARC’s 24) thus shortening commute times and decongesting crowded train cars. Amtrak service would be greatly improved; however this is typically for longer-distance travel and therefore outside of the scope of this paper.

Transportation Cons
Unlike the ARC Tunnel project this project would not create any new one-seat rides for northern New Jersey’s Bergen and Passaic lines, since it is redundant to an existing route. Additionally, it does not expand the network geography, as it still culminates on the west side of Manhattan. Therefore, employees in other areas of New York City still have to transfer into the subway network. There is also a potential logistical conflict in that the “tunnel box” or tunnel entrance into Manhattan conflicts with the already underway Hudson Yards redevelopment project.

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**External Pros**
The Gateway project has strong political support, with the endorsement of NJ Senator Frank Lautenberg (deceased and now replaced by transit advocate Corey Booker), NJ Senator Robert Menendez, and New York Senator Charles Schumer. Surprisingly, even New Jersey Governor Chris Christie has lent his support noting the project has interstate funding, a realistic cost estimate, and a federal government agency (Amtrak) as a lead. Additionally, since the high speed rail project, which benefits many eastern seaboard cities, is contingent on the Gateway project there will be national support for the project. Finally, the project has overcome the perceived hurdle of breaking ground, as the tunnel box, post office renovation, and some new tracks are underway.

**External Cons**
The major issue with the Gateway project as currently constituted is that it will cost even more than the ARC Tunnel project at $14.5 billion and has no clear sources of funding. At this point the federal government and Amtrak have funded engineering studies and environmental impact reports only. The project also has a lengthy time scale with an estimated completion date of 2025. A final hurdle is that the conflict with the Hudson Yards project has the potential to spiral into a high-stakes and lengthy lawsuit.

**Alternative 2: The 7 Line Subway Extension**
The “7 Line Subway Extension Project” became a political and media darling as an alternative after the ARC Tunnel project was cancelled. Like the ARC project ended by Governor Christie, this proposed train and tunnel would expand the regional transportation system by connecting Secaucus Junction to Manhattan. However, instead of creating a tunnel for NJ Transit commuter trains, the project would have tunneled to extend a branch of the New York City subway system across state lines for the first time ever. The 7 Subway Line is operated by the Metropolitan Transit Authority (MTA), New York City’s primary transit agency. The 7 line runs across Manhattan from Times Square to Grand Central up into Queens. Currently, the MTA is extending the 7 line from its current end at 41st and 7th Avenue (Times Square) to 34th Street and

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11th avenue, making it the furthest west of any subway line (visible in the route map below). This proposed extension would have pushed the route across the Hudson River to Secaucus, doubling the number of trains crossing the Hudson River (similar to the ARC project). New York City’s powerful Mayor Michael Bloomberg was a champion of the project stating, “Extending the 7 train to Secaucus is a promising potential solution ... and is deserving of serious consideration.”

Transportation Pros

The proposed 7 Line Extension would bring the high frequency, high capacity, high speed, and low ticket price of the New York City subway system to New Jersey for the first time. Unlike the ARC Tunnel, this extension would also create a connection all the way to Grand Central Station on the East Side of Manhattan, a major employment hub. Finally, it would have relieved human congestion at New York Penn Station, the primary transfer point from commuter trains to subways, as New Jersey travelers could enter the subway system on the west side of the river.

Transportation Cons

While the new line would have created new connections for the overall metropolitan transportation system, they would not have created the desired “one-seat” ride for New Jersey train commuters. As discussed in class, time spent transferring or waiting trains is often perceived by travelers as much longer than it is in reality. The one seat ride also provides a level of comfort and relaxation, which is

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interrupted by the need to make a transfer. The promise of a one-seat ride was made more apparent when NJTransit purchased 36 dual-locomotive (diesel and electric capacity) in anticipation of the ARC Tunnel project. Currently, riders along the busy Raritan Valley line (10% of all NJ Transit riders) ride in the new “one-seat capable trains” but must still transfer at Newark due to the tunnel bottleneck. Neysa Pranger, a spokeswoman for the Regional Plan Association, expressed the importance of this missed goal stating the 7 extension only hits “two of the three goals of the ARC project…not the goal of a one-seat ride from New Jersey to Manhattan. A one-seat ride is a big lure for riders to switch from their cars to transit.

**External Pros**

Unlike the ARC Tunnel, the 7 line extension would not require costly condemnation proceedings or extensive tunneling in Manhattan, because the city is already building a No. 7 station at 34th Street and 11th Avenue. This drastically reduces the estimated project cost to roughly $5 billion, half of that of the ARC Tunnel or a third of the Gateway project. Additionally, the project has strong political support, primarily from New York City Mayor Michael Bloomberg. Also worth noting is that Chris Christie has also shown support for the project, stating “The mayor (Bloomberg) wants this. And it’s a heck of a lot better (than the ARC tunnel).” Additionally, elected officials from both New Jersey and New York City have gone on record that they would financially contribute to the subway extension. While the project’s momentum dwindled a bit in 2013, the New Jersey Assembly performed the symbolic gesture of passing a resolution of project support, renewing buzz around the project.

**External Cons**

While the 7 Subway extension has interstate political support and could provide tremendous new transit connectivity, it is being challenged by the most important agency at play. Currently, the Metropolitan Transit Authority that actually operates the New York City Subway system has no interest in

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35 Flores-Dewey, Onesimo. Transportation Planning and Development. Harvard GSD. Lecture 11/20/13
37 Bernstein, Andrea. Mayor Bloomberg Explores Extending Subway to New Jersey. WNYC.org http://www.wnyc.org/story
40 Ave Sagas. Ibid.
pursuing the project. According to former MTA Chairman Joe Lhota, “It’s not going to happen in our lifetime — it’s not going to happen in anybody’s lifetime.” This dire outlook comes from the harsh realities of the MTA’s finances. Currently, the MTA’s five-year capital plan for system maintenance and ongoing expansion projects doesn’t even have substantial funds. The current program, which maintains and operates the bus and commuter train system, and ongoing expansion projects like the first-leg of the Second Avenue subway. In fact, the City of New York loaned the MTA more than $2 billion to extend the 7 line from Times Square to its new end destination at the Hudson Yards.

**Preferred Alternative and Implementation Steps**

Based on the transportation metrics of the *ARC Alternative Transit Project* report (shown to the right) both of the proposed post-ARC alternatives, the Gateway project and the 7 line extension, would strengthen the trans-Hudson transportation network and bolster the regional economy. However, neither project addresses all transportation needs. The Gateway project would increase train and station capacity from New Jersey but provide no new transit connections. The 7 Line Extension would increase the frequency of trains and connect people to the expansive subway system but provide no new one-seat rides.

Both projects also exhibit positives and negatives in terms of the extremely important external indicators of politics, funding sources, and agency involvement. At this point each project has seen a level of critical interstate and bipartisan support. One important political worry is that the main champion of the

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subway extension, Mayor Bloomberg has only months left in his final term. In terms of cost the 7 line extension is significantly cheaper, yet it has virtually no dollars earmarked to it. Choosing a lead agency also plays a critical role, as was evident when the Port Authority was not able to carry the ARC project to completion. The Gateway project benefits from being coupled to the multi-regional and federally owned Amtrak and thus has a national level of importance. On the other hand, the MTA, the operator of the 7 line subway is in financial disarray and therefore has no interest in an expensive trans-Hudson tunnel.

Based on these findings and in an effort to best support the New Jersey and New York economies, I propose the following steps to address the issues of politics, funding, and agencies in completing a trans-Hudson River infrastructure project:

1. Pursue an “Alexander Hamilton Tunnel” that Combines the Gateway and 7 Line

There are multiple reasons for pursuing both projects in coordination. As described, neither proposed alternative fully addresses all of the transportation needs of the New Jersey- New York region. Also, placed in the context of staggering regional population growth and no new transit tunnel being constructed in 100 years, there is clearly the need and latent demand for multiple cross-Hudson solutions. From a transportation perspective, completing both projects would drastically reduce travel times, create multiple options for travelers, reduce system congestion, promote public transit, increase one-seat rides from New Jersey, and strengthen the relationship between the two states politically and economically.

For the purposes of tunneling there may be cost efficiencies gained by including Amtrak, NJTransit, and New York City subway trains in a single tunnel project instead of two separate tunnel projects. Logistically both proposals cross at Secaucus Junction in New Jersey and at 34th Street and 11th Ave in Manhattan, near the site of the new station for the 7 line extension. While the 7 would continue to Queens, the NJ Transit and Amtrak trains could exit the tunnel and branch off to their final destination at the new Moynihan Station (schematic map on the following page). As New York real estate magnet Jerry Gottesman explains, “Having the two systems share a tunnel is not a new solution (for the area). The 63rd
St. subway tunnel for the F train was built with two levels, one above the other. The Long Island Railroad extension to Grand Central Station will utilize the currently unused level of that tunnel. By building one tunnel that can serve both the 7 train and Gateway, both projects will be able to advance when the first one proceeds, laying the foundation for future regional mobility and growth.42

From a political perspective this combined project would also satisfy multiple viewpoints. Mayor Bloomberg would get the subway extension he desires, Governor Chris Christie receives a new tunnel which New Jersey does not need to pay an excessive amount for, NJ Transit riders get their mythical one-seat ride, the New York business community reaps the benefits of a revamped Manhattan west side, and the federally supported Amtrak has a bottle-neck free high speed rail route. A critical step will be aligning support from various politicians early on in the process. This support must be made transparent to the public and the media to avoid the speculation of back-door motivations. This transparency will also help ease the tension of a multi-election cycle mega-project, which contributed to the ARC cancellation, as Chris Christie used the project to attack his predecessor. Finally, I suggest a historic name to solidify the project’s perceived reality in the public discourse and to make the project in line with the George Washington Bridge

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and Lincoln Tunnel. I suggest naming the tunnel after one of America’s founding fathers, Alexander Hamilton, who was a representative of New York and founded the United States’ financial system. It is also notable that Hamilton’s famous duel-to-the-death occurred in Weehawken (the New Jersey entrance to the tunnel) and he is buried in western Manhattan (south of the New York City entrance to the tunnel).

2. Create a Metropolitan Planning Organization Specific to the Trans-Hudson Issue

While it may seem that creating a new agency would further complicate a trans-Hudson project, I believe it is the only way to successfully plan and fund the mega project. While both states have MPO’s, New Jersey with the North Jersey Transportation Planning Authority and New York City with the New York Metropolitan Transportation Council, there is no unified transportation planning agency. Although an MPO may seem similar to the Port Authority of New York and New Jersey who led the ARC Tunnel effort; in reality the Port Authority does little proactive planning and has a narrow focus on its facilities without a holistic view. The Port Authority also consists of 12 commissioners, who are hand selected by the governors of New Jersey and New York (six for each governor). This makes the Port Authority inherently politically motivated and fully subject to election cycles.

The creation of an interstate MPO could help unify the visions of the conflicting agencies at play in a Hudson River tunnel project. To ensure equal input from all parties each of the following should receive one commissioner seat: New Jersey Governor representative, New York Governor representative, New York City mayor representative, Hudson County (NJ) Freeholders representative, NJTransit representative, Amtrak representative, MTA representative, Port Authority representative, and two at large representatives of the public. After MPO creation and with full agency representation, this body should then handle all transit studies and act as a funding conduit. The MPO’s first task would be to study the feasibility of the joint Hamilton Tunnel project in terms of engineering and funding. If the project is deemed possible and beneficial, this agency would be incentivized to accurately assess project costs and overruns, since it is handling all sources of funding. The MPO can also act a forum for negotiation, allowing the multiple parties

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43 Board of Commissioners. The Port Authority. [http://www.panynj.gov/corporate-information/board-commissioners.html](http://www.panynj.gov/corporate-information/board-commissioners.html)
to agree upon funding sources and responsibilities for additional costs. This will help avoid the behind-the-scenes negotiations of the ARC tunnel which resulted in New Jersey being liable for all project overruns.

3. Pursue Alternative Funding Sources

With the potential cost of this Hamilton Tunnel to be in the $15-$20 billion range, funding the project will be a challenge. Current earmarks and verbal commitments for one of the two proposed projects (Gateway and 7 Extension) could be in the $10-$12 billion range. It may be possible that combined funds from the past ARC Tunnel project with additional dollars from the federal government, Amtrak, NJ Transit, the State of New Jersey, the City of New York, MTA, and Port Authority, could sufficiently fund the project. However, there may still be a project deficit. Additionally, the issue of cost overruns, and who pays them, was a major factor in the ARC’s cancellation and could pose an issue with the Hamilton Tunnel. Therefore, I suggest pursuing creative funding measures to alleviate the pressure of lacking funds.

These creative funding solutions may include creating a “cost overrun fund” (in the $5 billion range), where any excess could be refunded to the tunnel funders, proportional to their funding contributions. This would operate much in the same way a contingency fund works in a traditional real estate development. Some of the creative funding strategies the Hamilton Tunnel should pursue are tax increment financing (TIF) or a divergence on collected taxes. Completion of the unified tunnel will greatly incentivize development, increase property values on both sides of the Hudson River, and create a job center on the west side of Manhattan. These conditions are ripe for a TIF which traditionally issues an upfront bond to finance a project, assesses properties in an area at a base level before project completion, diverts gains in property taxes after project
completion to refund the bond, and then allows all taxes to be collected by localities once the bond is fulfilled (see previous diagram). This financing scheme has been successfully applied throughout the United States, especially where property values rose quickly, as would surely occur after tunnel completion.

Based on the unique conditions of this proposed Hamilton Tunnel, I would propose a unique form of TIF. First, set the base assessment value at the time of groundbreaking to collect property tax increases off of speculation in the 10 year time frame of project construction. Second, establish a traditional property tax based TIF in a district around Secaucus Junction in New Jersey (and possibly near Newark Penn and new “one-seat” ride towns if feasible) and a proportional tax diversion of New York City’s income tax around the new west Manhattan job district. I would utilize the upfront bond created from this interstate funding agreement to back the “cost overrun fund”. Therefore, if the bond funds are not needed they can be refunded back to the state or city and the real value of diverted property and income taxes will be minimal. This takes the fear of cost overruns away from each agency and directly ties them to the residential growth in New Jersey and the employment growth in New York City.

**Conclusion**

While the ARC Tunnel project was unsuccessful, many lessons were learned from its swift cancellation. And these lessons will be needed; as the challenge of traversing the geographically induced bottleneck at the Hudson River remains a looming threat to the growth of the New Jersey-New York region. While the proposed alternatives of the Gateway project and 7 Line Extension have individual benefits, they will not solve the regional transportation issues alone. But if completed in unison, they can set the region on a positive transportation course for another 100 years. The efficiencies gained by combining the projects extend beyond transit planning, as a unified tunnel could address critical external issues. Namely, by pursuing a multi-train type Hamilton Tunnel, creating an interstate MPO, and utilizing unique funding schemes, the challenges of politics, funding, and agencies can be bored through like the muddy riverbed of the Hudson River.