

Executive Summary

Introduction

Poughkeepsie 9.44.55 – Rethinking the Arterials and Interchange is a planning initiative of the Dutchess County Transportation Council (DCTC) that entails a comprehensive operational and planning analysis of the Route 9/44/55 Interchange in the City of Poughkeepsie and the Route 44/55 Arterials in the City and Town of Poughkeepsie, seeking to identify feasible design concepts for each facility. The successful result will better integrate the facilities with the downtown business district and local neighborhoods while enhancing safety and access for all users.

This planning study is the result of years of momentum and calls for action to identify alternatives for the Arterials and Interchange, to address multi-modal safety and operational needs, enable funding for improvements, and ultimately improve quality of life.

Study Purpose:

Identify feasible design concepts for the Route 9/44/55 Interchange and Route 44/55 Arterials, based on an informed and public process, that maximize safety, livability, and connectivity, while delivering acceptable traffic operations.

Study Goals



Improve safety along the arterials and at the interchange



Improve traffic flow through the interchange and address congestion



Make it easier to walk and bike between neighborhoods and downtown



Recommend design concepts that improve the form and function of the arterials and interchange

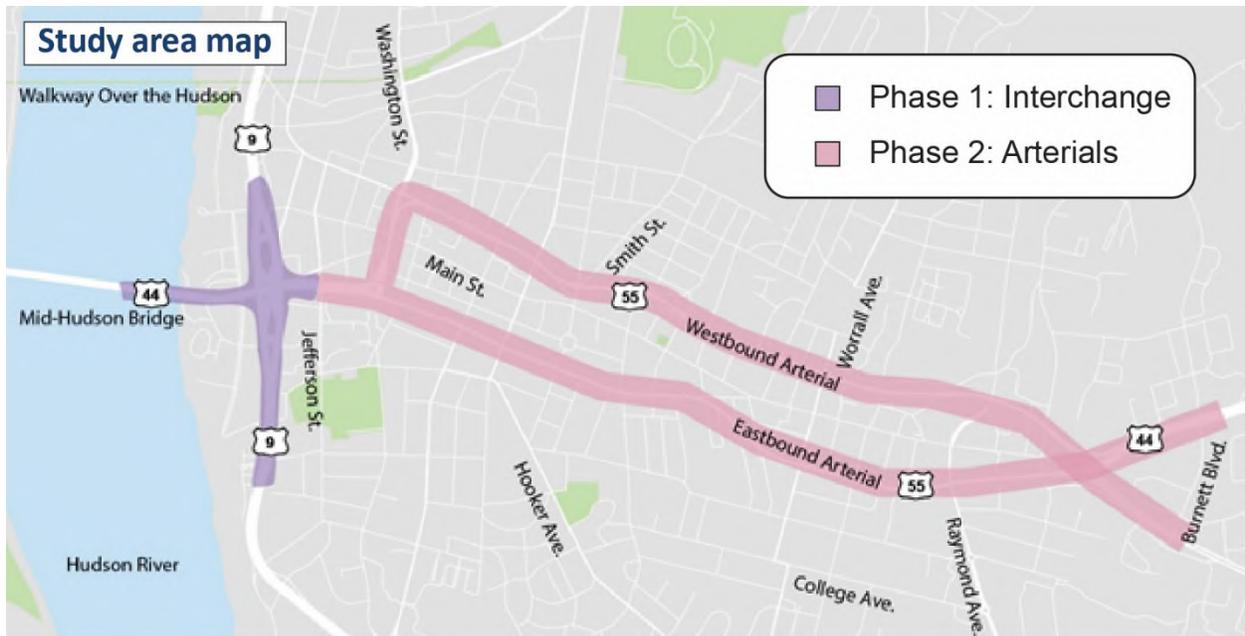


Anticipate future travel patterns and needs



Identify costs

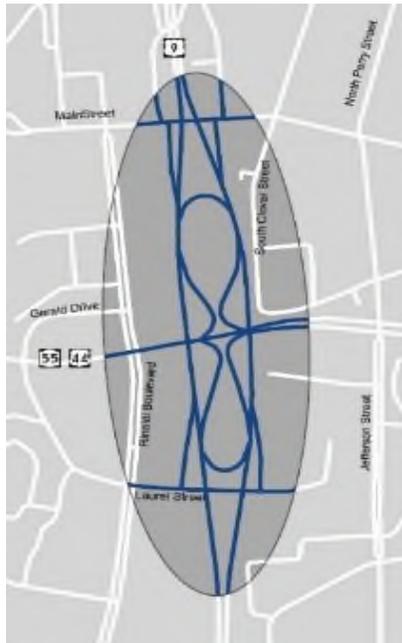
The study area generally extends from the Mid-Hudson Bridge and along the Arterials to Burnett Boulevard in the Town of Poughkeepsie, as well as along US Route 9 from Columbia Street to Main Street in the City of Poughkeepsie. As shown below, the study was split into two separate but interconnected Interchange and Arterial phases.



Study Area Map

Though the Arterials and Interchange have been discussed and thought about from a planning perspective for decades, they were never fully analyzed from a traffic safety and operational standpoint. Poughkeepsie 9.44.55 seeks to address this knowledge gap, providing the necessary analysis of crash and traffic data, travel flows, and multi-modal connectivity to inform actionable design concepts. These concepts balance regional and local travel needs, and address state, county, and local priorities.

Existing Conditions Assessment



9/44/55 Interchange Area

The 9/44/55 Interchange has an unconventional configuration and includes features such as left side ramps and short weaving distances that contribute to driver confusion and conflicts. The Arterials and Interchange both experience crash rates substantially above the statewide average for similar facilities. This includes the section of the westbound Arterial on Columbus Drive near Main Street, where weaving is a concern.

SUMMARY OF CRASHES BY TYPE (JANUARY 1, 2016 TO DECEMBER 31, 2018)

Type	Interchange	Intersection	Segment	Total Crashes
Vehicle	407	628	290	1,325
Pedestrian	0	24	6	30
Bicycle	0	13	5	18
Total	407	665	301	1,373

The study’s crash analysis shows that crash rates at most of the locations studied on the Arterials and at the Interchange are above the statewide average for similar facilities.



Congestion at the Route 9 weave south of Route 44/55

The existing conditions assessment also shows that a high percentage of households in the area do not have access to a vehicle and rely on other modes of travel, such as walking, bicycling, and transit. This can be a challenge since the zoning analysis shows that the Arterials separate residential areas from commercial areas, requiring people to cross the Arterials to reach services and destinations. Meanwhile, the existing Arterials are vehicle-oriented, each with three lanes carrying approximately 20,000 vehicles per day. Travel speeds are typically 10 mph above the posted speed limit and while through traffic generally moves well along the Arterials, there is recurring congestion at the Interchange and approaching the Mid-Hudson Bridge.



Eastbound Arterial east of Columbus Drive

Public and stakeholder input correlates well with the existing conditions data, reflecting concerns about traffic operations and safety. Public input shows that some drivers avoid the Interchange entirely, and that the Arterials in their current configuration are uncomfortable for pedestrians, with related concerns about safety, operations, and quality of life.

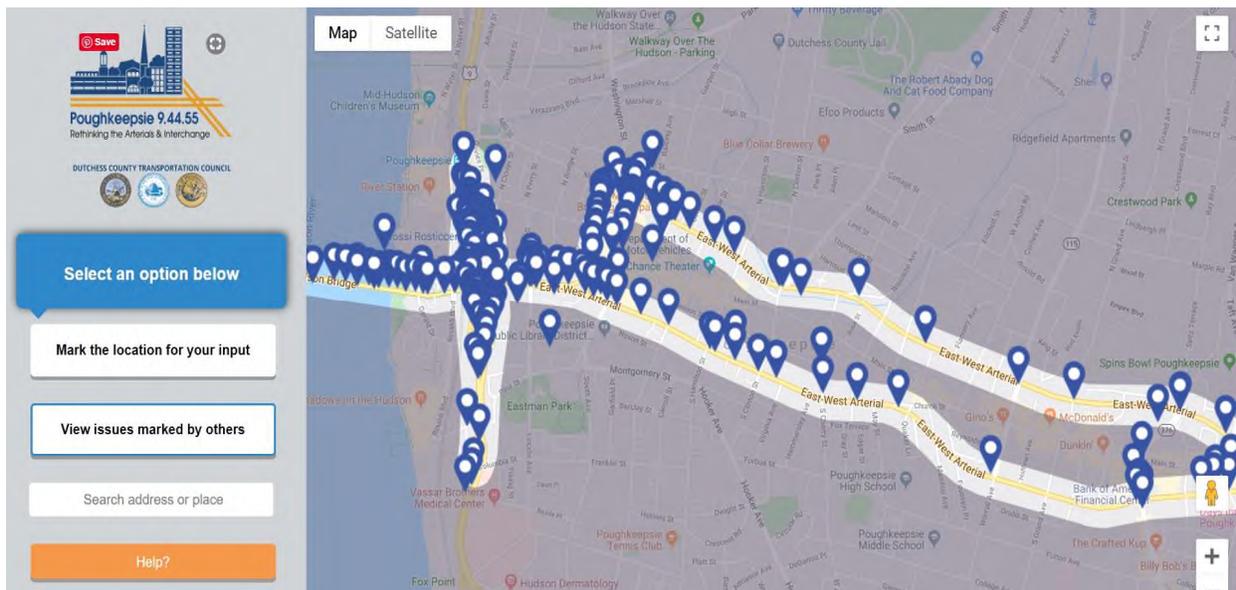
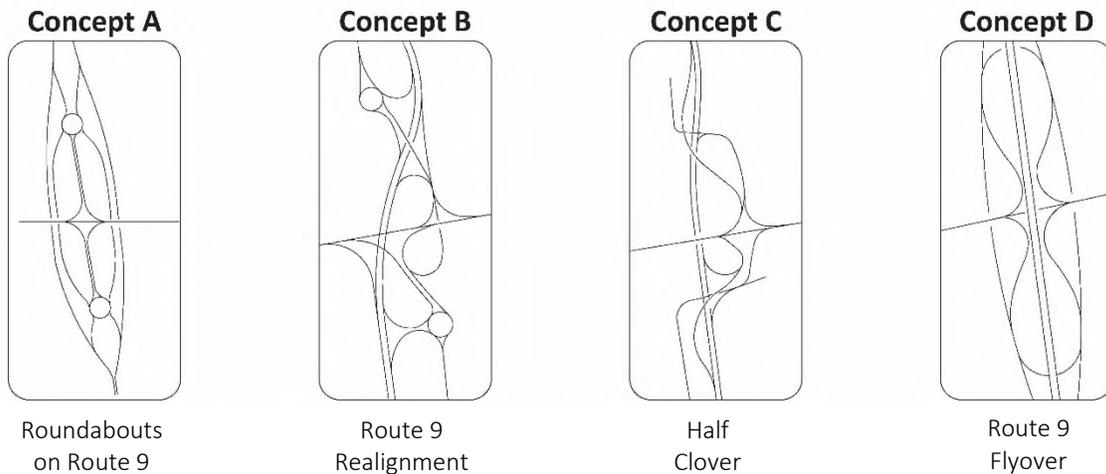


Image from on-line public engagement tool showing locations of comments

Interchange Concepts and Analysis

Based on the project goals, 13 preliminary design concepts were developed for the Interchange to improve its safety and operations. These were designed to be sensitive to the surrounding area, meaning that concepts that would significantly impact right-of-way or the Mid-Hudson Bridge were not explored. A screening process was used to determine which Interchange concepts to analyze in further detail. The screening included a traffic analysis, development of traffic models, and analysis of critical travel movements to see which concepts could provide reasonable traffic operations. The screening also compared the concepts based on several performance measures including safety, traffic operations, community character/context, and cost/constructability. Of the 13 concepts, four emerged as the most viable, warranting further public review and more detailed analysis.



The traffic analysis showed that all four concepts would reduce congestion and the potential for crashes at the Interchange. A high-level review by NYSDOT noted that Concept A had the fewest constructability and maintenance issues, and that it limited potential right-of-way and utility issues compared to the other concepts.

Concept A (Roundabouts on Route 9) achieves most of the project objectives, appears to be the simplest and most feasible to construct, and can be built at a lower cost than the other three concepts.

The study concludes that Concept A (Roundabouts on Route 9) achieves most of the project objectives, appears to be the simplest and most feasible to construct, and can be built at a lower cost than the other three concepts. Concept A would also provide good traffic operations into the foreseeable future to support growth in the area and would improve safety at the interchange by managing low speed traffic at roundabouts. Disadvantages of Concept A include maintaining some left-side ramp movements on US Route 9, the need to bring multiple ramps into or out of the roundabouts at close spacing, and the need for some local traffic detours. In particular, traffic traveling from Main Street or Laurel Street to the Mid-Hudson Bridge would need to use alternate local routes such as Rinaldi Boulevard or Jefferson Street.

The adjacent figure is for planning purposes only and shows the conceptual improvement plan for the Route 9/44/55 Interchange in the City of Poughkeepsie, known as Concept A – Roundabouts on Route 9. The final design could vary significantly from the concept shown. While this concept appears promising, it is subject to further engineering and environmental study as part of any project design process.

Next steps include continued coordination with the involved agencies to pursue funding and ultimately include an Interchange project on the DCTC's Transportation Improvement Program (TIP) or NYSDOT's Capital Program. In addition to Concept A, Concepts B and C are recommended for further evaluation during the design and environmental review phase.

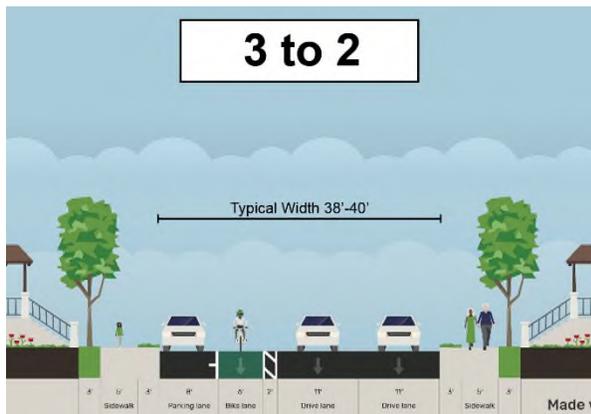


Concept A - Roundabouts on Route 9

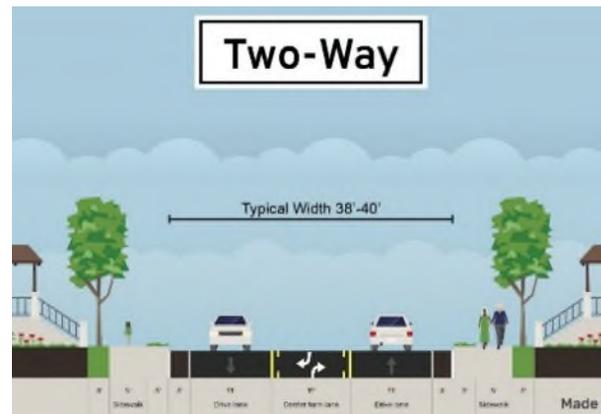
Arterial Concepts and Analysis

Two overarching design concepts were developed and analyzed for the Arterials: the 3 to 2 Concept and the Two-Way Concept. The 3 to 2 Concept maintains one-way traffic on the Arterials and reduces the number of travel lanes on each Arterial from three to two, allowing the remaining pavement to be reallocated for bicycle lanes, parking, bus stops, loading zones, or green space. The Two-Way Concept converts both Arterials to two-way streets, providing a single lane in each direction with a center two-way left turn lane. Each Concept was evaluated based on safety, travel time and traffic operations, freedom of movement/local access, speeds, curbside options, walking comfort, dedicated space for bicycles, emissions, costs, and public support.

A fundamental consideration during concept development was to identify concepts that could be implemented by keeping most of the work in the existing right of way.



3 to 2 Concept Cross Section



Two-Way Concept Cross Section

Both concepts are expected to improve safety for all road users compared to existing conditions but will likely operate at or near capacity for drivers during the typical morning and late afternoon commute times (peak hours). With 5 or 10 percent traffic growth, and with additional corridor friction such as frequent parking maneuvers and taxi/bus activity, both concepts would likely operate over-capacity, resulting in peak hour travel times for through traffic approximately two to three times longer than existing conditions. However, if traffic volumes remain similar to pre-COVID conditions, then the 3 to 2 Concept could provide reasonable traffic operations. Traffic is also dynamic, and some traffic is expected to divert to alternate routes.

The 3 to 2 Concept is preferred over the Two-Way Concept based on better traffic operations and the opportunity for multi-modal benefits including targeted on-street parking, delivery/loading zones, bicycle lanes, wider buffers to sidewalks, curb extensions, and shorter pedestrian crossings.

Recognizing that the 3 to 2 Concept is projected to operate at or over capacity during peak periods (depending on future volumes) and the potential for traffic diversions to alternate routes, a pilot project of the 3 to 2 Concept is recommended to test the lane configurations before investing in long term infrastructure improvements. A pilot project is essentially a real-life research project that is installed for long enough so that people can adjust to the new lane arrangement and fully establish new travel patterns. This is recommended to occur during a typical construction season (April 15 to November 15) when roadway construction projects and work zones are normally in place. The pilot project would require the development of a draft plan to document the purpose, time frame, Temporary Traffic Control Plan, how success is measured, and the data to be gathered during the pilot, as well as a final report to summarize the results. The pilot project should include updated signal timings along the Arterials to optimize operations.

The results of the traffic analysis for the 3 to 2 Concept show the potential for traffic congestion and over capacity conditions during the peak hours on the Arterials. The recommendation is to conduct a pilot study to test the actual lane configurations before investing in long term infrastructure improvements.

A pilot project on the Arterials should include an evaluation of delays, travel times, crash patterns, and traffic volume changes (diversions to alternate routes). Pedestrian and bicycle activity could also be documented. Concurrently or prior to the pilot project, improvements with independent utility, such as extending the westbound left turn lane at Jefferson Street or redesigning the Clinton Street/Smith Street intersection on the westbound Arterial, could also be progressed (independent utility means the concept would have benefits regardless of the results of the pilot project). Further discussions will be needed between the City, Town, DCTC, and NYSDOT to progress the pilot project. The existing Arterials do have some reserve capacity and could potentially be reduced from 3 lanes to 2, subject to community feedback and the findings of the pilot project. An extensive public awareness and education campaign should be included as part of the pilot project.

Next Steps

Poughkeepsie 9.44.55 stands as one of most ambitious and challenging studies that the DCTC has pursued in its 40-year history. Despite being undertaken during a pandemic, the study accomplished what it set out to do – provide design concepts for two regionally significant transportation facilities, vetted through a detailed simulation analysis and public process. The conclusion of this study is only the start of what will be an ongoing process to make these recommendations reality.