

New Visions 2035 Plan Update

Topic: Infrastructure

Background

The highest priority of CDTC's New Visions Plan is to maintain the Capital District's infrastructure, including all federal-aid roads and highways, and all state and locally owned bridges¹. In order to help properly maintain these assets, CDTC together with the New York State Department of Transportation (NYSDOT) and some local municipalities, conduct regular surveys of the condition of Capital District roads. Bridge inspections are exclusively conducted for all area bridges by NYSDOT. Based on this information, CDTC has been able to identify those facilities that are in the greatest need of repair, and to develop a program to schedule those repairs.

The New Visions 2030 development included the use of a *Transportation Finance Task Force*. The task force consisted of representatives from the New York State Department of Transportation (NYSDOT) Main Office and Region One, CDTA, the New York State Senate, the Schenectady County Legislature, two local consulting firms and several local governments (city, county, town and village). The *Transportation Finance Task Force* included as part of its work, updates to the infrastructure part of the New Visions plan. The New Visions 2030 plan includes the products of the task force.

What Has Transpired Since Adopting New Visions 2030

Construction Inflation: A major consideration in the New Visions 2030 update was the impact of construction inflation on the ability to finance infrastructure and other work, mostly because it had increased drastically and without much warning in the three or four years prior to the inception of this task force. The task force determined the magnitude of the inflation, its impacts on the recent past, and projected its impacts on the future. Since that time, construction inflation has tapered off to a more traditional rate.

Funding: The majority of federal funding in the Capital District is spent on the preservation of roads and bridges. Over the last five years, more than \$446 million (federal, state, and local) has been invested in the region's (federal-aid eligible) roads and bridges², including resurfacing, rehabilitation or reconstruction of about 300 lane-miles of pavement and repair or reconstruction of 47 bridges. Notable bridge projects include \$58M for the Batchellerville Bridge in Saratoga County and over \$40M for the Exit 6 Bridge over I-87 in Albany County. State and local highway funding, as well as transit funding, has experienced a combination of fiscal squeezes and one-time stimulus

¹ *Federal-aid roads are typically the most heavily traveled routes and are functionally classified as arterials or collectors, serving both regional and inter-municipal travel needs. The remaining streets, classified as local, primarily serve property access. Roads on the federal-aid system are eligible to compete for certain categories of federal transportation funds through CDTC's Transportation Improvement Program. Federal-aid designation does not guarantee that the cost of roadway resurfacing or reconstruction will be covered by the Region's federal-aid resources.*

² *Many of the road and bridge maintenance projects include either new, or repairs to existing, bicycle and pedestrian facilities.*

programs. Significant growth in real terms has not occurred (see the Financial Plan discussion).

Maintenance Strategies: Given the atmosphere of a shortage of funding, the strategy to perform the lesser expensive and short lasting repairs continues to be in effect for most roads and bridges. This maximizes the pavement condition benefit of funds at least in the short term. As a result, the New Visions strategy of reconstructing significant portions of the expressway system has not been performed. CDTA has transitioned to its continuous fleet replacement strategy, but funding gaps in the overall transit capital program are present.

Road & Highway Condition: As shown in Table 1, federal-aid roads held their own between 2005 and 2009; at the risk of overstating subtle trends, the data indicate that slight declines in locally-owned federal-aid pavement conditions are more than balanced by modest improvement in overall state pavement conditions. The CDTC sample-based estimate of the conditions of the region’s non-state non-federal-aid system shows improvement from 2004 to 2008, but is likely that trends vary considerably from municipality to municipality and differ by level of municipality.³ While funding constraints have not caused noticeable decline in pavement conditions, little progress has been made toward the New Visions 2030 goal of significant reconstruction of the expressway system that will range from 50 to 85 years of age by 2035. Additionally, financial “trriage” has prevented the state and others from even programming necessary work on a number of roads in poor or low-fair condition; as a result, pavement conditions on state owned arterials on the NHS system appear to be more similar to those on locally owned arterials than to conditions on the Interstate system.

Table 1
Current Road & Highway Condition Compared to New Visions 2030 Update
For All Roads & Highways in the Capital District By Ownership⁴

Road Type	Lane-Miles	2004/05		2008/09		New Visions Goal	
		Percent Poor/Fair	Percent Poor+Fair	Percent Poor/Fair	Percent Poor+Fair	Percent Poor/Fair	Percent Poor+Fair
Federal-Aid							
New York State	2,850	10/37	47	8/32	40	13/20	33
Non-State (NSFA)	1,668	19/28	47	20/34	54	14/20	34
All Federal Aid	4,518	13/34	47	12/33	45	---	---
Non-Federal Aid							
Local	10,764	27/23	50	19/27	46	15/20	35
State	166	10/52	62	6/48	54	15/20	35
All Roads	15,448	23/27	50	17/29	46	---	---

³ CDTC rate the condition of a 100% sample of Albany City and Albany County roads annually; trends there show slight decline (city) and general stability (county) of pavement condition.

⁴ New York State highway mileage and pavement condition data is derived from NYSDOT’s 2005 Sufficiency Rating and 2009 Pavement Summary Table provided by NYSDOT. Information for non-state federal-aid and local non-federal aid roads was derived from CDTC’s Pavement Condition Inventory. Non-state federal-aid data is based on 2005 and 2009 surveys. Local non-federal data is based on 2004 and 2008 pavement survey. NYS federal-aid data include highways under New York State Thruway jurisdiction.

Bridge Condition: CDTC staff reviewed bridge condition by ownership and compared current known conditions to the conditions at the time of the New Visions 2030 update and the goals of the 2030 plan. Overall, conditions worsened somewhat, consistent with forecasts developed in the 2030 plan update, giving back some of the gains achieved in prior years towards the long-term bridge condition goals of the plan. Since 2006, the number of deficient bridges increased from 30 percent to 34 percent of all bridges.

Table 2
Current Bridge Condition Compared to New Visions 2030 Update
For All Bridges in the Capital District By Ownership⁵

Ownership	Number of Structures	Deficient Structure			
		2006	2010	2018 Forecast	New Visions Goal
New York State:					
NYSDOT Interstate	148	30% (44)	38% (56)	47%	24%
NYSDOT Non-Interstate and OGS	360	33% (116)	34% (123)	31%	20%
NYS Thruway	69	24% (16)	35% (24)	24%	24%
Local	348	30% (104)	32% (110)	39%	20%
Other	19	--- ---	47% (9)	---	---
All Bridges	944	30% (283)	34% (322)	40%	22%

NYSDOT also expresses the magnitude of deficiencies for bridge deck area. Deck area normalizes for bridge size, giving a better basis for calculating cost-to-repair. In terms of deck area, Table 3 shows about 58 percent, or 5.7 million square feet, of total Capital District bridge deck area is considered deficient and in need of some type of repair. Of the region's 148 interstate bridges under the jurisdiction of NYSDOT, roughly 38 percent are considered deficient and 70 percent of the deck area is considered deficient.

Table 3
Capital District Bridge Deficiencies Expressed in Terms of Bridge Deck Area

Ownership	Deck Area (Square Feet)	Deficient Deck Area			
		2006	2010	2018 Forecast	New Visions Goal
New York State:					
NYSDOT Interstate	3,057,278	65%	70% (2,160,259)	68%	11%
NYSDOT Non-Interstate and OGS	4,452,460	47%	54% (2,389,332)	36%	20%
NYS Thruway	1,166,339	---	55% (644,586)	---	---
Local	1,014,578	45%	40% (404,542)	37%	20%
Other	111,429	---	69% (77,103)	---	---
All Bridges	9,802,084	---	58% (5,675,822)	---	---

⁵ Information in this table was derived from NYSDOT's Annual Bridge Reports for 2005 & 2009. Values shown in parentheses in the table represent number of structures. NYSDOT defines a deficient bridge as one with a condition rating less than 5 on a 1-7 scale. A deficient condition rating indicates the presence of sufficient deterioration and/or loss of function to require corrective maintenance or rehabilitation. It does not mean that the bridge is unsafe. The federal bridge rating scale (not reported here) distinguishes between 'structural deficiency' and 'functional adequacy'. According to the federal scale, only about 25% of deficient bridges identified by NYSDOT can be considered 'structurally deficient'. Even then, federally identified 'structurally deficient' bridges are not necessarily considered unsafe.

Transit Conditions: CDTA's capital investment, on the whole, has kept pace with that of the New Visions 2030 plan. While capital budget gaps continue (projects on the TIP that seek or require additional capital funds), CDTA has succeeded with its transition to a program of routine fleet replacements and has made inroads with both vehicles and station improvements for BRT. Constraints and reductions in operating resources continue to be a much greater issue constraining service improvements.

Intermodal Facilities: Major capital investment at the Rensselaer station, Saratoga Springs station and the Albany International Airport were complete prior to adoption of the New Visions 2030 plan. Investment in these facilities, particularly the airport, has continued. Plans for rehabilitation or reconstruction of the Schenectady station are in place with partial funding in hand, and double-tracking and Livingston Avenue bridge rehabilitation has secured ARRA funding. The Port of Albany is well underway with wharf improvements, in part due to CDTC's support for ARRA highway funding – the only MPO in the state to offer such support for port projects.

Conclusions

Construction Inflation: The New Visions 2030 Update incorporated the drastically increased inflation leading up to the update into the costs of repairs, but did not assume that it would continue at that pace. Instead, it was assumed that costs had been bumped up and more reasonable inflation would occur from the levels of those new, higher, costs. CDTC staff analysis shows that this is consistent with what has happened in the three years since the 2030 Update, requiring no adjustment to unit cost assumptions in the plan. (See also the Financial Plan discussion.)

Funding (Traditional and Additional): Funding levels have not increased substantially but continue to be a hot topic at state and federal levels; the New Visions 2030 long-term funding assumptions remain valid (see the Financial Plan discussion).

Maintenance Strategies: Short term changes to repair strategies would not be expected to have significant long-range effects. If budget-driven, lower-cost repair strategies were expected to be in place over a long term period, it would require updates to the data of the Highway Condition Project Model (HCPM), and new projections would need to be made. As stated above, the New Visions strategy of reconstructing significant portions of the Interstate system has not been performed. Since very little could have been done in the first three years of the period since the 2030 Update was approved, this is not cause for alarm. However, if this were to continue, the effects of it would need to be studied and incorporated into the next long-range plan. For the present, the New Visions 2030 policies remain valid.

Proposed Further Treatment for the 2040 Plan

As with any long-range plan update, during the 2040 Plan Update, the following will need to be updated and incorporated into new cost and condition projections: cost of repairs (which are affected by construction inflation), funding (which could change in the next federal or state multi-year funding legislation), repair strategies and their effects, transit fleet and station treatments and intermodal facility needs. In particular, some focus will need to be placed on the reconstruction of Interstates, the scale and pace of other high cost infrastructure renewal projects and the relationship between transit operating funds and capital plans.

In addition to pavements and bridges, maintaining culverts is essential to the safety, reliability, and longevity of the region's roadway infrastructure. Many aging culverts have deteriorated beyond the point where they can withstand maximum flow, while others have filled with sediment, reducing their capacity and causing them to overtop prematurely. State-owned culverts are inspected by NYSDOT in a manner similar to bridges. Currently, of the 1,109 large culverts maintained by NYSDOT in the Capital District, 228, or 20 percent are rated structurally deficient⁶. Consideration should be given to conducting a comprehensive inventory of culverts maintained by region's counties, towns, and villages.

Consideration should also be given to developing a comprehensive asset management plan that includes pavement, bridge, culvert, guiderail, traffic signal, transit and "green" assets. A comprehensive asset management plan would be particularly valuable in refining the financial plan for preservation of the whole system.

Additionally, CDTC will re-examine its sampling approach to estimating the condition of non-federal-aid roads. It is possible that the variety of road types and the variety of municipality types calls for a larger or differently-structured sample to increase confidence levels in the results.

⁶ *The data for Region 1 reported here is considered subject to change based on new inspection data. Currently, of the 6,000 large culverts maintained by NYSDOT statewide, about 2,100 are rated structurally deficient.*