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# Above and Beyond: The New Frontier (Parkway)

Scalable Solutions For Visualizing,  
Communicating and Understanding  
Transformational Roadway Design



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## Scalable Solutions For Visualizing, Communicating and Understanding Transformational Roadway Design

**“ WE STAND TODAY  
ON THE EDGE OF A  
NEW FRONTIER. ”**

*John F. Kennedy  
Los Angeles, CA  
July 15, 1960*



### Introduction

Frontier Parkway is an important thoroughfare that runs along the border between the Town of Prosper and the City of Celina, located in Collin County, Texas and part of the Dallas metro area. The entire region is experiencing a tremendous amount of growth and the State, the regional planning organization, Collin County, the Town of Prosper and the City of Celina are working hard to keep pace to build a strong foundation for long-term growth and prosperity with forward thinking plans for better transit throughout.

Hulon Webb, the Town of Prosper’s Director of Engineering Services, needed the help of visuals to educate the public on the future state of Frontier Parkway, an interlocal public infrastructure project sponsored by the Town of Prosper, the City of Celina, and Collin County to upgrade and expand the roadway to meet the needs of the area’s rapidly developing population and economy.



Mr. Webb initially engaged RDV to produce a simple before-and-after 3D flyover video clip that would present the proposed changes to help educate the public. However, after learning more about RDV’s unique approach to visualization, Mr. Webb realized he had discovered a better way to produce more interesting and meaningful visualizations.



*Frontier Parkway - After*



*Frontier Parkway - Before*

## Background

The two-mile section of Frontier Parkway between the Dallas North Tollway and Preston Road was originally built as a simple two-lane facility through an undeveloped area with an at-grade crossing of the BNSF Railroad main line. Population growth had resulted in a new elementary school, a new high school with a major football stadium, several residential subdivisions, and other businesses. The original Parkway was wholly inadequate for current and future traffic demands, and the proposed upgrades would widen the road to four lanes with wide raised medians, left turn lanes, curbs-and-gutters, sidewalks, and a grade separation over the BNSF railroad tracks.



Mr. Webb had been impressed by RDV 3D visualizations he had seen for a similar project. When the Frontier Parkway project began to take shape the team initiated discussions regarding strategies for educating the public on the need for the project, how it would progress, and how it would impact traffic both during and after construction. Mr. Webb wasted no time in instructing Birkhoff, Hendricks, & Carter, the prime engineering consultant, to engage with RDV.

RDV proceeded to build a 3D model of the Frontier Parkway project using the existing engineering design and produced a [tiled before-and-after flyover visualization video](#) based on the model. This video was used by the County Commissioner in two public hearings and then posted to both the Town of Prosper and Celina websites. The visualization was well-received by Mr. Webb, the entire project team, and the public which, as indicated by initial feedback, is on board with the project.



*BNSF Railroad Crossing - Existing Conditions*



*BNSF Railroad Overpass Bridge - Final Design*

The true magic happened when Mr. Webb realized he could use the living 3D document to communicate additional aspects of the project at different stages of construction ([See images in online case study](#)). He needed a way to educate the public in advance of the traffic impacts during construction and the detours that would be needed. In particular he needed a way to make it clear that although the railroad overpass bridge might appear to be complete in the later stages, it would still need additional work before it could be used for traffic.

To meet these goals he asked RDV to add construction staging to the 3D model and develop visualization content that would show the entire evolution of the project and how traffic would be maintained during the construction process. This resulted in a model that showed the facility in five different states - the existing roadway, three stages of construction, and the final result. Grading surfaces, temporary barriers, and construction equipment were used to clearly show areas under construction. Finally, [a four-minute annotated video](#) showing the full progression was developed from the 3D model to help educate the public.



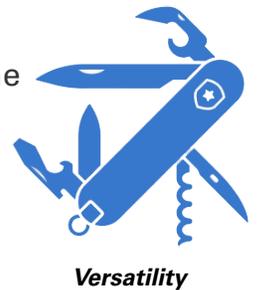
## Summary of Benefits - How RDV is helping the Frontier Parkway Project

RDV's state-of-the-art CAD-to-Cloud workflow provides reasonable pricing for modeling and visualization capabilities that would otherwise be outrageously expensive or out of reach of smaller local agencies and consultants. With its affordable pricing, partnering with RDV allows organizations of all sizes to reap the benefits of world-class, rapidly developed, and highly accurate visualizations without having to compromise on speed, quality, or budget.



Using an RDV 3D model means that not only can you can easily communicate your designs, but additionally you may:

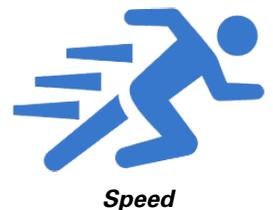
- Use interactive viewing and navigation of the 3D model to show the proposed facility and construction staging from any point of view.
- Use RDV's rapid "do-it-yourself" paradigm to produce as many images and videos as are needed to collaborate within the design team, with project stakeholders, and the public.
- Create and share an online Virtual Tour that provides a simplified interactive viewing environment that can be shared with the public.



RDV's 3D model is a geometrically accurate representation of the project in actual state-plane coordinates, as opposed to the more qualitative nature of traditional visualization renderings. As a result, the project team was able to validate design details such as measurements of sidewalks, retaining walls, and other structures during inter-agency meetings.



RDV's model-based approach made it possible to publish images and videos in a matter of minutes, as opposed to traditional visualization practices where it can take days or weeks to develop similar content.



Usually visualization is only considered for very large projects at the state level. The speed and ease of RDV's visualization process provides the opportunity to add value to smaller projects at the local agency level.



## Don't Take Our Word For It

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In Mr. Webb's own words:

***“RDV exceeded my expectations.*** *We typically had used artistic renderings of projects for the Town of Prosper, but I had seen RDV's work in the past and was very impressed. I had intended to use them on a project that ended up being reprioritized for a later date, but when the Frontier Parkway project was ready for construction, I knew there was a need for fast, engaging visualization that could convey the changes that were taking place. When the call came from the county commissioner's office asking for visuals they could reference during their hearing in two weeks, I knew RDV would deliver a fast, quality product to make the whole project easy to understand, and make the hearing a success for the commissioner and town's people.*



Hulon Webb, PE  
Director of Engineering Services  
Town of Prosper, TX

*However, I did not understand until engaging with RDV directly that they were actually building a 3D model, not producing videos. When they took me to the press box of the high school football stadium to see how the new road looked, I was floored. And once I realized I could also produce unlimited videos and visuals from any vantage point out of the model, we added a second round of public education to communicate the four phases of construction with our maintenance of traffic plan. And all we had to do was provide our existing CAD files. When we went live with our published videos of the RDV model, it was such a hit that even though the Town of Prosper has a population of 26,000 people, the video got over 40,000 hits and we knew then we had incredible engagement from the public on the project. It was great.”*

## Virtual Tour

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Scan the QR code with your smartphone or tablet for a 123BIM interactive Virtual Tour.



Or use this URL:

<https://vtour.123bim.com/AATN>

## Official Project Video

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Click on the YouTube link below to watch the official project video



Or visit the project website below:

[Frontier Parkway](#)



## About RDV Systems

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RDV Systems has been delivering innovative visualization products since 2005. Our mission is to provide tools for project visualization and road safety audits that dramatically expand the capabilities of engineers, designers, and safety officials, and allow for new ways to cooperate and communicate effectively at a cost feasible for projects of any size. Consultants and public agencies around the world rely on RDV software products and services to visualize, analyze, and communicate their designs.

### Contact RDV Systems Today:



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**RDV Systems—Laser Focused on Safety**