



# E-470 TOLL ROAD AND VEHICLE REGISTRATION FEES

The E-470 is a Colorado toll highway that received most of its funding from toll revenues, yet also received material support from value capture methods including developer right-of-way (ROW) contributions, vehicle registration fees, and highway expansion fees. It also benefited from modest joint development on its ROW.

## PROJECT OVERVIEW

E-470 is a 47-mile, primarily four-lane, limited-access toll road that makes up a major portion of a circumferential beltway around the eastern portion of the Denver metropolitan area. E-470 connects in the south to the I-25/C-470 interchange and in the north to the I-25/Northwest Parkway interchange. It is also a major link to the Denver International Airport.<sup>1</sup>

The idea of E-470, or I-470 as originally planned, began in the 1960s when the Colorado Department of Highways (predecessor to the Colorado Department of Transportation [CDOT]), perceived a need for a beltway around the Denver metro area.<sup>2</sup> The project was initially delayed due to opposition from the Colorado Department of Health and other stakeholders who were concerned that it would create air pollution.<sup>3</sup>

In 1987, the project was relabeled *C-470*, reflecting State rather than Federal ownership, and in 1990, the southwestern quadrant of the road segment was completed.<sup>4</sup> The implementation of E-470 dates back to 1981, when Arapahoe County, Douglas County, Greenwood Village, and private developers began the “Centennial Airport Influence Area Transportation Study.” The 1982 study recommended the extension of C-470 east and north to I-70. In the absence of Federal and State funding, Adams, Arapahoe, and Douglas counties joined to form the E-470 Authority, the predecessor of the current E-470 Public Highway Authority, through an intergovernmental memorandum of understanding. The city of Aurora joined a year later.<sup>5</sup>

## REGULATORY CONSIDERATIONS

### Framework Legislation

As planning commenced in the 1980s, stakeholders sought legislative powers to realize the project. In 1987, the Colorado Legislature approved the Public Highway Authority Act, giving E-470 the following powers:

1. To construct, finance, operate, or maintain beltways and other transportation improvements.
2. To take private property by condemnation.
3. To establish and collect tolls on any highway provided by the E-470 Public Highway Authority.
4. To establish and collect highway expansion fees from persons developing property within the boundaries of the E-470 Public Highway Authority, generally 1.5 miles on either side of the highway centerline.
5. To issue bonds and pledge revenues to the payment of bonds.

<sup>1</sup> Thomas J. Noel, *E-470: More Than a Highway, the Story of a Global Tolling Industry Pioneer*, Denver: E-470 Public Highway Authority, 2018, <https://www.e-470.com/Documents/AboutUs/E-470%20History%20Book.pdf>.

<sup>2</sup> Noel, *More Than a Highway*, p. 7.

<sup>3</sup> Noel, *More Than a Highway*, p. 7.

<sup>4</sup> Noel, *More Than a Highway*, p. 8.

<sup>5</sup> Noel, *More Than a Highway*, p. 9.

6. To succeed to the obligations of other governmental entities.
7. With voter approval, to impose vehicle registration fees and create special districts.
8. With voter approval, to impose taxes and fees within any part of the member governments' jurisdiction. The fees and taxes requiring an election are a sales or use tax, an employment privilege tax, a business occupation tax, and a motor vehicle registration fee.<sup>6</sup>

E-470 used all the powers listed above in items 1 through 8, except for those in item 7, to create special districts. The successful 1988 vehicle registration fee election was the only E-470 measure that was voted on by affected residents. E-470 never imposed taxes, and the ability to impose taxes was removed by subsequent legislation.<sup>7</sup>

In August 1988, the E-470 Authority unanimously adopted a resolution that endorsed a finance plan that included a \$10-per-vehicle registration fee to be collected within E-470's voting boundaries (parts of Adams, Arapahoe, and Douglas counties), highway expansion fees to be imposed within the Authority's geographical boundaries, and highway tolls on E-470 as sections of it opened.<sup>8</sup>

The highway expansion fees were one-time fees paid when a building permit was issued for new construction within 1.5 miles of the E-470 centerline.<sup>9</sup> The fee schedule was based on the following real estate characteristics:

- Fees varied by single-family residential, multi-family residential, retail, office, and industrial property.
- Traffic impact on E-470.
- Unique traffic trip-generating factors for different locations,<sup>10</sup> including scaling fees so that developments closer to E-470 or interchanges paid more.<sup>11</sup>

Beginning in 1989, E-470 began to impose and collect highway expansion fees, which in 1990 resulted in negligible total fees of \$14,000. The fee eventually increased to over \$300,000 per year, serving as an important funding source in the project's early years.<sup>12</sup>

### Regulatory and Financing Conditions for First Segment

The project's first financing came in August 1986 when Arapahoe County issued more than \$722 million in bonds on behalf of the E-470 Authority. These monies were escrowed until adequate credit protections were in place.<sup>13</sup> E-470 was able to begin construction when it obtained a 1989 letter of credit from the Union Bank of Switzerland (UBS) that secured payment of the bonds, 3 months after a successful voter election. The UBS arrangement permitted E-470 to break escrow on \$68.7 million in bonds, enough to complete construction on the first segment.

## MARKET CONSIDERATIONS

### Segment I Business Case

The 1989 financial feasibility analysis projected that tolls would pay 85–92 percent of the capital costs, with about 7 percent of these costs through the highway expansion fee and the remainder covered by the \$10-per-vehicle registration fees.<sup>14</sup>

<sup>6</sup> Noel, *More Than a Highway*, p. 12–13.

<sup>7</sup> Noel, *More Than a Highway*, p. 12–13.

<sup>8</sup> Noel, *More Than a Highway*, p. 13.

<sup>9</sup> "E-470 Board Votes to Eliminate Highway Expansion Fee," *Toll Roads News*, July 27, 2017, <https://tollroadsnews.com/mailbag/e-470-board-votes-eliminate-highway-expansion-fee/>.

<sup>10</sup> "E-470 Fee Explanation," Commerce City, Colorado, November 29, 2018, <https://www.c3gov.com/home/showdocument?id=1008>.

<sup>11</sup> "Project: E-470 Denver," AASHTO EconWorks Case Study, [https://planningtools.transportation.org/290/view-case-study.html?case\\_id=40](https://planningtools.transportation.org/290/view-case-study.html?case_id=40).

<sup>12</sup> Erin Douglas, "E-470 Eliminates Development Fee Near Highway," *Denver Post*, July 31, 2017, <https://www.denverpost.com/2017/07/31/e-470-eliminates-development-fee-near-highway/>.

<sup>13</sup> Noel, *More Than a Highway*, p. 4.

<sup>14</sup> Noel, *More Than a Highway*, p. 4.

In actuality, tolls were the project's primary funding source, yet vehicle registration fees were also a material funding source. When Segment I opened in mid-1991, toll revenue for that year totaled \$226,000, and the E-470 Authority received approximately \$4.7 million in revenues from vehicle registration fees, underscoring the importance of that source in the early years.<sup>15</sup>

Highway expansion fees supported the project in the early years as well. They amounted to \$150,000 on average in the first 5 years of operations, from 1995 to 1999, ranging from 0.63 percent to 2.06 percent of total revenue. The fees grew to as much as \$1.3 million in 2005. During the time that they were in place, from 1995 to 2017, they averaged \$335,000 per year.<sup>16</sup>

By 2015, vehicle registration fees of \$10.1 million were 5 percent of total revenues, and highway expansion fees were again below 1 percent of total revenues.<sup>17</sup> Vehicle registration fees are not traditionally considered a value capture source, because they are usually imposed on a regional or statewide basis; however, this vehicle registration fee was only collected within E-470's voting boundaries—parts of Adams, Arapahoe, and Douglas counties—similar to sales tax districts used to fund transportation projects.

## Segment II–IV Business Case

The construction of the subsequent Segments II–IV was more challenging compared with Segment I. In October 1990, UBS withdrew its April 1990 proposal to provide letter of credit financing for the remaining tollway segments as a result of the Persian Gulf crisis, international economic crises, and the savings-and-loan crisis. A joint venture led by Morrison-Knudsen (MK), an international construction firm, proposed to design and build Segments II–IV and take the lead in realizing the financial plan as follows:<sup>18</sup>

- A \$20-million loan from CDOT and a similar \$20-million loan from Douglas and Adams counties, as well as Parker, Thornton, Aurora, and Brighton counties.
- Moving the alignment about 1 mile closer to the already established population base, driving more traffic and more toll revenue and reducing construction costs.
- The purchase by MK of \$16 million of subordinate bonds, which would be repaid after the senior toll road bonds and the local and State loans were repaid.

This plan was eventually accomplished but only after 2 years of litigation from a jurisdiction opposing the plan, because they perceived the new alignment as diminishing their development opportunities.

## FUNDING PLAN

### Other Funding Sources

E-470 also benefited from other sources, including cell tower and solar panel installation. Along a 17-mile portion of the corridor, the E-470 Authority installed 22 solar sites to host solar-generated electricity panels for road surveillance cameras, signage, variable message signs, streetlights, toll-collection equipment, toll plazas, maintenance facilities, and the E-470's headquarters. Although this reduced E-470's electricity costs,<sup>19</sup> as with highway expansion fees, these savings were not material, amounting to less than 1 percent of total revenues.

### Creditworthiness, Finance, and Funding

The E-470 Authority has paid all debt service on outstanding debt and/or retired its obligations, including State and local loans that were repaid earlier than what was expected. For the remaining debt, E-470 bondholders have enjoyed high ratings, which as of February 2017, were BBB+, A-, and A3 for Fitch Ratings, Standard & Poor's, and Moody's, respectively.<sup>20, 21</sup>

<sup>15</sup>Noel, *More Than a Highway*, p. 15.

<sup>16</sup>Jason Meyers, *E-470 HEF to Total Revenue 1994-2017*, Spreadsheet provided via email to Sasha Page, November 30, 2018.

<sup>17</sup>E-470 Public Highway Authority, *Year 2015 Cash Flow Summary*, 2016, <https://www.dacbond.com/GetContent?id=0900bbc78013f2a4>.

<sup>18</sup>Noel, *More Than a Highway*, p. 18.

<sup>19</sup>Noel, *More Than a Highway*, p. 36.

<sup>20</sup>Noel, *More Than a Highway*, p. 36.

<sup>21</sup>Fitch Ratings, "Fitch Affirms E-470 Public Highway Authority's (CO) Revs at 'BBB'; Outlook Stable," June 15, 2016, <https://www.sectorpublishingintelligence.co.uk/news/1427230/fitch+affirms+e470+public+highway+authoritys+co+revs+at+bbb+outlook+stable>

The highway expansion fee and the vehicle registration fee were rescinded in 2017 and 2018, respectively. The former was rescinded because the fee collection placed a high administrative burden on the member jurisdictions, which had to calculate the fees and then collect them with the building permits, and there were 15 pages of fees that varied according to real-estate characteristics. Furthermore, over time, the fees became smaller as a percentage of revenue and less important overall.<sup>22</sup>

E-470 has had a major impact on the Denver metropolitan area. The E-470 Authority estimates that, since 1986, E-470 has been the catalyst for more than \$38.4 billion in real estate construction and appreciation along its 47-mile-long corridor, and that corridor developments contribute \$467 million in annual property taxes.<sup>23</sup>

Furthermore, E-470 has catalyzed development in the far eastern suburbs of Denver, increased the rate of development in the region, and accelerated the timetable for development by as much as 15 years, according to some observers.<sup>24</sup>

## COORDINATION AND PARTNERSHIP

Three major sources of support helped to realize the E-470 project. First, E-470 was supported by three counties and several municipalities that planned it. CDOT also supported it eventually with monies that helped with its design and engineering.

Second, the successful ballot election in 1988 was a critical referendum on the project, confirming the support of most residents and giving the E-470 Authority permission to apply the vehicle registration fee and highway expansion fee. These funds also provided valuable non-toll funding sources at project start and demonstrated local commitment.<sup>25</sup>

Third, the project relied on significant support from developers and landowners along or near the alignment. Initial proponents included George M. Wallace—who had earlier helped develop the Denver Tech Center, which is considered Denver’s second downtown<sup>26</sup>—and Cal Fulenwider III, who owned property near the project. The E-470 Executive Advisory Committee, chaired by Fulenwider, comprised a half-dozen major land developers who came to the table to discuss land acquisition options. Furthermore, several advocates, including developers, funded and ran an independent political group, the BELT Committee (Build E-470 for Less Traffic), to support the project.<sup>27</sup>

These developers donated around \$175 million in ROW to E-470,<sup>28</sup> a major contribution to the project given its cost of over \$1 billion. According to Fulenwider, “E-470 came to me to put together an executive committee of major landowners. We both wanted a pioneering, productive P3 with give and take. We donated probably 4–5 miles of land. In exchange, we were given a voice on where the interchanges would be built.”<sup>29</sup> Fulenwider was later involved with major developments in the E-470 corridor, including Reunion, a 3,000-acre master-planned community in Commerce City, and the Peña Station, a transit-oriented development near Denver International Airport.<sup>30</sup>

About 25 percent of the ROW in Segment I was acquired through donations. Significant donations continued for other highways, such as Cal Fulenwider’s donations between 56th and 112th Avenues.<sup>31</sup> For the remaining ROW, the E-470 Authority negotiated most purchases, with a total outlay of around \$50 million. Condemnation was rarely used.<sup>32</sup>

<sup>22</sup> Jason Meyers, *FHWA Every Day Counts: E-470 Case Study*, email to Sasha Page, November 30, 2018.

<sup>23</sup> Noel, *More Than a Highway*, p. 48.

<sup>24</sup> AASHTO EconWorks, “Project: E-470 Denver.”

<sup>25</sup> Jason Meyers, email.

<sup>26</sup> Noel, *More Than a Highway*, p. 9.

<sup>27</sup> Noel, *More Than a Highway*, p. 14–15.

<sup>28</sup> Noel, *More Than a Highway*, p. 4.

<sup>29</sup> Noel, *More Than a Highway*, p. 10.

<sup>30</sup> Noel, *More Than a Highway*, p. 10.

<sup>31</sup> Noel, *More Than a Highway*, p. 16.

<sup>32</sup> Noel, *More Than a Highway*, p. 16.

## PROJECT TAKEAWAYS

Various forms of value capture helped make the E-470 possible:

- The highway expansion fee—a form of development fee—was expected to play a material role in phasing the first E-470 segment, yet this did not occur. The actual highway expansion fee revenues were de minimis compared with the project's \$1.23-billion capital cost.<sup>33</sup>
- Vehicle registration fees were a material funding source, especially early on when they amounted to as much as 8 percent of total revenues. They can be interpreted as a form of value capture, because they were imposed primarily on areas adjacent to E-470.
- The contribution of developers and landowners for ROW was very material to the project, amounting to more than 10 percent of project costs.
- Developers were also very instrumental in providing other resources and advocating for the project.

Although value capture helped realize the project, the primary funding source was toll revenues. Bondholders, financial intermediaries, local and State agencies, and the design–build joint venture took significant risks in lending to this project.

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<sup>33</sup>"Project Profile: E-470 Tollway," U.S. Department of Transportation Federal Highway Administration, [https://www.fhwa.dot.gov/ipd/project\\_profiles/co\\_e470.aspx](https://www.fhwa.dot.gov/ipd/project_profiles/co_e470.aspx).



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