



## AESTHETICS COMMENTARY

by Frederick Gottemoeller

A single-point urban interchange (SPUI) is an aesthetic challenge. The distance required to span the left-turn lanes is a stretch for girders; the girders are made very deep. Often, their depth is as much as 50% of the vertical clearance. The opening below the bridge frequently looks squashed. On the cost side, the greater structural depth raises the profile, lengthening the ramps. One alternative would be a three-span structure to reduce the structural depth over the lower roadway. However, that option results in side spans with nothing to put under them—a seeming “waste of space.” Therefore, it is rarely tried.

The designers for the Kino Parkway Bridge Overpass at 22nd Street took a

careful look at all of these factors and decided that the conventional wisdom for how best to span a SPUI might be wrong. It turns out that their three-span structure is both economical and attractive. During construction, “wasted” space under the side spans allowed for maintenance of traffic. Afterward, the space was used for terraced, curved retaining walls that soften the appearance of the interchange, reduce the height of the abutment wall, and create a place for landscaping.

However, the biggest payoff is in the thinner main span, which opens up for drivers on 22nd Street the views through the bridge to the urban core beyond and makes the bridge seem lighter and more graceful. In addition,

there is always a visual benefit when the shape of the structure demonstrates how the bridge is working; in this case, the depth of the bridge is the greatest over the piers, where the moments are the highest. People, even non-engineers, have an intuitive sense of structure. Where their intuition tells them the forces are the highest, they expect the bridge to look the sturdiest. Seeing their intuition matched by the shape of the bridge is always satisfying. The addition of the fluted feature on the girder web above the piers reinforces that satisfaction by drawing attention to the region of force concentration.

The flutes on the piers and the various art features draw strong shadows in the Arizona sun, making them recognizable at a distance, while the repetition of the flutes on all parts of the project ties the whole ensemble together. That makes the bridge and the interchange a memorable place, which makes the urban core around them memorable as well.

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