An adept cast-in-place builder will often be able to deliver a structure of superior quality to a precast option for the same or lessor budget.

When analyzing costs, make sure to include the following items that are often overlooked:

- Equivalent durability measures – topping slab, additives
- Skin – exterior treatment
- Long term maintenance costs of joints, connections, bird droppings, etc.

- Caulking at Precast Joints
- Cost per car, not cost per square foot - CIP provides more parking per SF
- CIP requires less lighting - fewer fixtures, lower energy costs

Many designers support the aforementioned:

“Initial costs are typically fairly even”
- Thomas Butcher, Walker Parking Consultants

“It has been our experience that preliminary projected savings by precast double-tee systems may not be realized in the finished project.”
- Ron Saxton, International Parking Design
PROJECT BENEFIT - TIMELY EXECUTION

With CECO’s cast-in-place solution, start time from NTP decreases by up to 10 weeks as there is no lead time for fabrication. This not only expedites project delivery, but provides the owner better cash flow as there is no up-front cost for fabrication - you pay as you build.

CECO’s depth of experience with preconstruction and construction processes allows us to value engineer what our competitors cannot - saving projects time and money.

PROJECT BENEFIT - NO LEAKAGE

CECO’s cast-in-place solution will prevent the heavy leaking common with precast structures increasing the quality of the parking experience for the owner and/or the owner’s customers.

PROJECT BENEFIT - BETTER DRAINAGE

Our cast-in-place solution allows the forming of floors for proper overall drainage. This is much more efficient than trying to warp precast tees and compensate for tee camber.
CECO’s cast-in-place solution provides open bays without shear walls, creating the following benefits:

- Increased effectiveness of lighting
- Fewer dark and potentially dangerous areas
- Increased visibility of signage and wayfinding capability
- Reduced operational costs associated with signing and lighting a precast structure
With CECO’s cast-in-place solution, the project owner will not incur costly annual maintenance common of precast options. Depending on climate conditions as much as 30% - 50% of all joints must be replaced in a precast garage each 3-5 years, adding down-time, cost and hassle. Additionally, pre-cast structures create many areas for birds to nest, leading to more maintenance cost and an uncomfortable environment for the parking public. CECO’s cast-in-place monolithic structure has far fewer joints requiring much less maintenance.

Precast Parking Structure Maintenance Information:

Precast Joints (Cast-in-place has approximately 5% of the number of joints as precast):

• Average life 3 to 5 years
• Typically 30 to 50% of all joints are affected
• Process includes: Routing, cleaning, replacing
• Cost are typically $4.00/linear foot

What if it’s Welded, not Bolted?

• Problem occurs at the beam/double-tee connection
• 50% of the area typically affected
• Repair cost is approximately $375/connection
• At 3-5 years, a typical deck of 100,000 SF+ would cost $200,000 and $300,000 to repair. Then, each year after that, the owner will spend between $50,000 to $100,000 in preventative maintenance

- Lee Popovich, Structural Preservation

“Durability measures have improved such that I would expect on a garage designed and constructed now the expected maintenance cost difference would be $0.25-$0.30/sf per year.”

- Bill Gmiterko, P.E., AGA Consulting, Inc.

(Based on Bill’s input, a 300,000 SF precast structure would cost $75,000.00 more per year than a cast-in-place structure in maintenance)
DENVER INTERNATIONAL AIRPORT CASE STUDY - PRECAST MAINTENANCE

10 Years of Maintenance on 13,000-car Structure:

• DIA - Parking Structure Level 5 Moisture Protection, 2010 - $2,121,334: “Provide concrete repairs and moisture protection for the DIA parking garage level 5 and other areas where indicated.”

• DIA - Parking Structure Moisture Protection Phase III, 2009 - $7,762,701: “The project is to improve the service life of the parking structures and to add protection to the structures from moisture and de-icers. The majority of the work includes the removal and replacement of concrete that is in poor condition, the resealing of horizontal and vertical surfaces to improve the resistance to moisture, resealing joint and improving the shear connections between the concrete floor panels.”

• DIA - Parking Structure Moisture Protection Phase II, 2006 - $6,128,000: “The project is to improve the service life of the parking structure by protecting the existing structure from moisture and de-icers. The major parts of the work include removing and replacing the concrete that is in poor condition, resealing horizontal and vertical surfaces to improve their resistance to moisture, resealing joints, and improving the shear connections between the concrete floor panels.”

• DIA - Parking Structure Moisture Protection Phase I, 2001 - $6,249,739: (No project description available, assuming it is identical to Phase II and III)

Total cost of DIA precast parking structure repairs and maintenance from 2000 to 2010:

$22,261,774, or $1,712.44 per space

(Construction was completed in 1995)
PROJECT BENEFIT - RIDE QUALITY

CECO's cast-in-place option will eliminate the annoying “thump thump thump” irregularities common of a precast structure due to the “double t” design of precast garages. CECO's cast-in-place parking structures have no joints to jostle your vehicle as you park.

PROJECT BENEFIT - HIGHER PERCEIVED CEILING

With CECO's cast-in-place solution, there is approximately 10.5 feet of space from the ceiling to the bottom of the slab. On precast options, there is about 8.5 ft to bottom of tee stems.

Precast - Low Ceiling

Cast-in-place Ceiling