

Narrative History of Belknap Place

Oldest Existing Concrete Road in Texas (1914)

San Antonio, Texas

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I. **Context and Significance:** Belknap Place, a street in San Antonio, is a significant civil engineering achievement: It is a 0.7 mile long concrete pavement that, in 2014, marks its centennial. There are few streets in the United States reaching this milestone.

- a. In the late 19th and early 20th centuries, the U.S. was quickly changing from a rural-dominated country, to an urbanized/industrial country; motorized vehicles were putting great strains on dirt, gravel and macadam roads, and a more durable paving material was needed.¹ In 1891, the City of Bellefontaine constructed the first concrete street in the U.S.² It was a development of George Bartholomew and James C. Wonders. Bartholomew learned about cement production at the San Antonio Cement Co (aka Alamo Roman and Portland Cement Co.). This pavement used a two-layer concrete system; it was so advanced and revolutionary, that it won the First Place for Engineering Technology Advancement in Paving Materials at the Chicago International Exposition of 1893. Between then and 1915, only 1,764 miles of concrete roads were constructed in the U.S. However, concrete road construction increased exponentially after that, with 2,963 miles constructed in 1915 alone.¹ The

development of concrete pavement in the early 20th century was an important process that helped facilitate the transition to motorized vehicles and a more urban/industrial society, and the 1914 construction of Belknap Place pavement was at the forefront of the new technology.

- b. Belknap Place is one of the few still-existing examples of the original generation of concrete streets placed in Texas and the U.S. Belknap Place was constructed with an innovative patented process, called “Granitoid,” which used a two-layer (or two-course) placement³. A number of Granitoid roads across the U.S. and Texas⁴ were constructed in the same time period, some of which still exist in places such as Calumet, MI (c. 1906)⁵, and Grand Forks, ND (c. 1911).⁶ Two-course technology is only now being rediscovered by the Federal Highway Administration and State DOTs, including TxDOT, as a potentially greener and less expensive way to build certain concrete highways and roads.⁷
- c. Belknap Place has lasted 100 years, most of it without resurfacing. It has provided an incredibly durable and cost-effective pavement for the citizens of San Antonio and particularly the residents of the Tobin Hill and Monte Vista Historic Districts. It is in good to excellent condition, and should continue to provide excellent performance for years to come.
- d. San Antonio is recognized as the birthplace of the portland cement industry West of the Mississippi, and the City has a history of preserving this history. The first cement plant in the West was built in 1880 in San Antonio by the Alamo Roman and Portland Cement Company (subsequently the San Antonio Cement Company, and now Alamo Cement).⁸ That first plant and quarry were transformed into

Brackenridge Park, where the Japanese Tea Gardens now stands. The remains of the original kiln are the subject of a Texas Historic Commission marker. The second plant, constructed in an area near Alamo Heights called “Cementville,” was where the portland cement for Belknap Place was manufactured. The stacks from this plant now serve as a recognizable landmark for the modern mixed-use development, the Alamo Quarry Market.

II. **Overview:** San Antonio constructs a concrete pavement for Belknap Place.

- a. July 1, 1914: A city ordinance is approved appropriating recently-approved bond funds, to pay Texas Granitoid Company to construct Belknap Place.⁹
- b. August 1, 1914: The City issued a contract for the construction of Belknap Place (from Dewey Place to Agarita Ave) to Texas Granitoid, approved by the City Engineer, and signed by Mayor Clinton S. Brown. The contract included the concrete pavement, curbing, and a five-year warranty for maintenance.¹⁰
- c. October 5, 1914: The City passed an ordinance that split the cost of the construction, totaling \$37,685.66, between the City (\$18,349.85) and property owners (\$19,335.35).¹¹ A special assessment was levied on the property owners. Prominent property owners included:

- i. Mr. Altee Ayers, designer of the Municipal Auditorium, the Smith-Young Tower (now the Tower Life Bldg.), and the “Taj Mahal” entrance to Randolph AFB.
- ii. Mr. Otto Koehler, a brewing pioneer who was head of the San Antonio Brewing Association (now Pearl Brewing Company).
- iii. Mr. Vorios P. Brown, a prominent sheep rancher.

- iv. Mrs. Roxana Gunter, widow of Jot Gunter, who built the Gunter Hotel, Gunter Office Building, Gunter Ranch, and for whom the City of Gunter was named.
 - v. Mr. Jno. A Kerr, president of the Somerset Oil and Gas Co.
 - vi. Christ Episcopal Church, est. 1907, and designed by Atlee B. Ayres.
- d. August to December 1914: Concrete pavement was constructed and completed.
 - e. December 7, 1914: Final payment of \$5,000 was authorized by City Council to Texas Granitoid Co. for successful completion of the project.¹¹

III. Historical Marker Proposed Text:

Belknap Place, from Dewey Place to West Agarita Ave. in San Antonio, was constructed in 1914. It is the oldest surviving concrete road in Texas, and one of the oldest in the United States. On August 1, 1914, the City of San Antonio issued a construction contract to the Texas Granitoid Company at a cost of \$37,685.66, split by the City and property owners. The road was completed by December 1914.

The road employed an innovative, patented process called “Granitoid” that consisted of a two-layer system: A lower lift with large coarse aggregate, and a denser surface course utilizing a hard granite aggregate that imparted excellent wearing characteristics. The aggregates were mined in Knippa, TX.

The unhardened surface of the pavement was brushed to improve traction, and scored in a 4 by 9 inch pattern (resembling bricks), to provide a non-slipping foothold for the calks of horseshoes.

Belknap Place remains as a still-functioning example of concrete that used portland cement from San Antonio's second cement plant located in an area known as "Cementville" (near Alamo Heights, the site of Alamo Quarry Market). San Antonio itself is considered the cradle of the cement industry West of the Mississippi, where, in 1880, the Alamo Roman and Portland Cement Co. built its first quarry and kiln, now the sites, respectively, of the Japanese Tea Garden and Baumberger Plaza in Brackenridge Park.

IV. **Discussion of Texas Historical Commission Scoring Criteria:**

- a. **Age:** 100 years old (in 2014)
- b. **Historical Significance:** As noted above it is the oldest concrete street still existing in Texas and is an excellent example of an innovative, patented process known as "Granitoid." It is one of the oldest existing examples of concrete pavement in the U.S. Belknap Place is located in the Monte Vista Historic District in San Antonio, which is on the National Register of Historic Places. The durable nature of the process and materials used to make the concrete has allowed the street to maintain its functional integrity for 100 years. The National Register of Historic Places (NRHP) provides a method of evaluating roads for historic significance. One of the four criteria is "Criterion C," *Transportation Engineering* where "significance is exhibited by early or innovative engineering methods or experimental programs."¹³ Additionally, the NRHP recognizes specific road subtypes that include "County and local roads in the 19th and early 20th centuries." The period of significance of these roads is limited to pre-1916 (prior to passage of the Federal Aid Road Act of 1916).¹³

- c. **State of Repair/Integrity:** Good to Excellent. The road is a fully-functioning street that receives daily traffic in the Monte Vista District. Most of the road provides a smooth, comfortable ride. The surface is completely intact (though in some locations a worn-off asphalt overlay is visible). There is no need for repair or resurfacing. Cracks in the concrete are expected to occur (because of initial material shrinkage) and have existed in their present state for likely near 100 years (shrinkage cracks generally occur very early in concrete).
- d. **Diversity of topic for addressing gaps in historic marker program:** This marker adds to the diversity of the program by including a long-lived, innovative example of public infrastructure. It provides a perspective of the Monte Vista Historic District that evokes a time when horses and carriages were more prevalent than cars and trucks. The surface, specifically, was engineered to allow horses with shoes to keep from slipping (i.e. the stamped “brick” pattern in the surface).
- e. **Value of topic as an undertold or untold aspect of Texas history:** Few roads in Texas have been cited for their historical significance because of the engineering, material and construction process used to construct them. That is because most roads have a physical life cycle between 20-50 years, and are often overlaid or reconstructed during this time. Belknap Place provides an outstanding, historic example of one of the most visible elements of public infrastructure: streets and highways. Additionally, the principal aggregating ingredient in concrete is portland cement. San Antonio is known as the birthplace of the portland cement industry West of the Mississippi, with the opening of the

Alamo Roman and Portland Cement Company in 1880. This road is one of the few visible existing examples of concrete made from Alamo's second cement plant (now the site of San Antonio's Alamo Quarry Market). The site of the first cement plant (where portions of the kiln still exist) has a Texas State Historical Marker, and is located below the Japanese Tea Garden in Brackenridge Park.

- f. **Endangerment level of property, site, or topic:** Belknap Place, though generally in good repair, is on a public right-of-way owned by the City of San Antonio. It has already (10-15 years ago) received a thin asphalt overlay in some areas, that has partially or completely worn off (the overlay did nothing to improve the functionality of the street, and it is questionable as to why it was ever placed). However, there is always a chance that the street may again fall within a "maintenance program" of the city and be overlaid or even reconstructed. Additionally, utility cuts (which have occurred in a few places) could potentially damage the street's historic materials further. Historic designation will help alert the City, the Monte Vista Historic District, and other stakeholders that any change or rehabilitation proposed for this street should be carefully scrutinized.
- g. **Available documentation and resources:** Please see above sections and references below.
- h. **Diversity among this group of candidates:** N/A as we do not know the other candidates submitted for historic marker approval.
- i. **Relevance to other commission programs:** Historic Texas Highways program. In 2009, House Bill 2642 established the Texas Historic Roads and Highways

Program. This program's goal is to identify, designate, interpret, and market historic roads and highways in Texas.

- j. **Relevance to the commission's current thematic priorities:** Unknown

References

1. Portland Cement Association, "Facts Everyone Should Know about Concrete Roads," April 1916.
2. Snell, L. and Snell, M., "Oldest Concrete Street In The United States," *Concrete International*, pp. 72-74, March 2002.
3. U.S. Patent No. 856105 A, "Pavement Method and Making of the Same," U.S. Patent Office, June 4, 1907.
4. Green, R., and Kemp, L., "Bulletin of the Agricultural and Mechanical College of Texas", p. 24, Agricultural and Mechanical College of Texas, Vol. 6, No. 6, May 1, 1920.
5. Mailloux, L, Peterson, K, Ellis, K., King, M., and Van Dam, T., "The Granitoid Concrete Pavement of Calumet Michigan – Over One-Hundred Years of Service," 9th International Conference on Concrete Pavements, International Society for Concrete Pavements, 2008.
6. Hoffbeck, S., "Press Release: Granitoid Pavement in Grand Forks North Dakota," Grand Forks Historic Preservation Commission, 1990.
7. Texas Department of Transportation, "Meeting Summary: Two Lift Concrete Paving Workshop," May 24, 2013

8. National Park Service, "Historic American Buildings Survey – Alamo Roman and Portland Cement Company (San Antonio Portland Cement Company)," Department of the Interior, Washington, DC, 1983.
9. City of San Antonio, "Ordinance," July 1, 1914
10. City of San Antonio, "Contract for Paving, Curbing, Etc.," August 1, 1914.
11. City of San Antonio, "Ordinance," October 5, 1914.
12. City of San Antonio, "Ordinance," December 7, 1914.
13. Jensen, B., "Historic Road Infrastructure of Texas, 1866-1965," Section F, Page 7-8;
National Register of Historic Places Multiple Property Documentation Form, submitted by
Texas Department of Transportation, 1992.