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VILLAGE LOOP ROAD
(Grand Canyon Route #9)
(Village Access Road)
Grand Canyon Village
Grand Canyon National Park
Coconino County
Arizona

HAER No. AZ-41

PHOTOGRAPHS

~~WRITTEN HISTORICAL AND DESCRIPTIVE DATA~~

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
P.O. Box 37127
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

VILLAGE LOOP DRIVE
(Grand Canyon Route #9)
(Village Access Loop)
HAER No. AZ-41

Location: Village Loop Drive is a service road within Grand Canyon Village which describes an irregular loop around the railroad tracks and allows access to visitor services. Coconino County, Arizona.

UTM A: 12 3990640 397795 /S. Entrance Int.
UTM B: 12 3990690 396800 /W. Rim Dr. Int.
UTM C: 12 3990325 396995 /Maswik Lodge
UTM D: 12 3990500 397515 /Center Rd. Int.
Grand Canyon, Arizona USGS Quadrangle, 1988

Date of Construction: 1929, 1930, 1934-35

Type of Structure: Service road

Use: Service road

Designer/Engineer: U.S. Department of Agriculture, Bureau of Public Roads (BPR).
U.S. Department of Interior, National Park Service (NPS).

Builders: G.R. Daley, Vincent & Pringle, Phoenix, AZ;
NPS day labor forces.

Owner: NPS, Grand Canyon National Park (GCNP).

Significance: As the primary access road to facilities at Grand Canyon Village since the turn of the century, the evolution of Village Loop Drive reflects the growth of park visitation with attendant administrative and concessioner developments. Associated structures reflect rustic architecture of the years 1928-36.

Project Information: Documentation of Village Loop Drive is part of the NPS Roads and Bridges Recording Project, conducted in summer 1994 under the co-sponsorship of Grand Canyon National Park and HABS/HAER. This report was researched and written by Michael F. Anderson, HAER Historian, September 1994.

INTRODUCTION

The 1.25-mile Village Loop Drive today serves as the principal transportation artery within Grand Canyon Village. It begins at the intersection with South Entrance Road adjacent to the 1921 Superintendents' residence and continues west past the railroad depot to its intersection with West Rim Drive. The loop then turns south, crossing the tracks and continuing to Maswik Lodge, thence east, crossing the wye railroad tracks to the residential area, thence east past the Fred Harvey barns, the intersection with Center Road, and Grand Canyon Lodges' administrative offices to its point of origin.

Segments of Village Loop Drive date to Grand Canyon Village's pioneer era and it is difficult to pinpoint its origin since the idea of a "loop drive" within the village did not come about until after the 1930s. Early concessioners developed sections of the road through simple use; the NPS constructed sections in conjunction with other road projects. Only after the 1930s when all segments were in place did the road assume an identity of its own, and not until the 1960s did it acquire the name Village Loop Drive. Despite its ambiguous beginnings, it is necessary within a study of Grand Canyon roads to discuss the loop drive's evolution, since all visitor facilities until the 1950s were accessed from this road, and all major south rim roads terminate (and have terminated since the late nineteenth century) at or within Village Loop Drive's alignment.

HISTORICAL CONTEXT

Development of Village Loop Drive began with the first commercial structure constructed near the head of the Bright Angel Trail. In 1896, James Thurber established the Bright Angel Hotel near the trailhead, and extended the early Flagstaff tourism wagon road from its terminus at the Grandview Hotel (14 miles to the east), down Long Jim Canyon, past Rowes Well, and up to the Canyon rim. Thurber was joined by Ralph Cameron's Hotel & Camps in about 1898. When the Lombard & Goode railroad spur from Williams (later, the Grand Canyon Railway) arrived as far as Anita in 1899, and was extended to Coconino Station in 1900, stage lines immediately opened to take rail passengers from these stations to the south rim. These enterprises developed a road from Rowes Well to the area of today's Bright Angel Lodge, which was the progenitor of the western and northwestern portions of today's Village Loop Drive.

There was little need for a road directly east of the two south rim hotels until the arrival of the Grand Canyon Railway in 1901. With construction of the El Tovar Hotel in 1903-05, relocation of

the railroad depot eastward to a point directly south of the hotel by 1909, and development of Fred Harvey service structures (mule barns, employee housing) in intervening years, a series of connecting roads surrounding the railroad tracks began to emerge. A 1909 hand-drawn map clearly illustrates that by that year the eastern segment of the loop ran very close to the alignment in place in the middle 1920s. The southern segment ran westward to the Fred Harvey stables, but perhaps no farther until the NPS developed the village automobile campground in the middle 1920s. The northern segment ran westward between the El Tovar and depot (slightly up hill of today's alignment) and continued the entire distance to Hopi Point by 1908.¹

The Santa Fe railroad and its concessioner partner, the Fred Harvey Company, dominated all forms of development at Grand Canyon Village from about 1904 through arrival of the NPS (and for some years thereafter). Their development of an informal loop road by 1909 reflected little if any overall planning, however, as roads continued to proliferate in all directions based on the exigency of reaching scattered service structures. By 1917, one could hardly step more than a few paces from the Canyon rim in any direction for a quarter mile without stumbling upon a road.² A visitor might circumnavigate the RR tracks within this jumble of wagon ruts, but likely could not find the same route if he tried it a second time. Hard as it may be to believe, confusion may well have exceeded that experienced by visitors today.

In 1918, Frank A. Waugh described Grand Canyon Village as

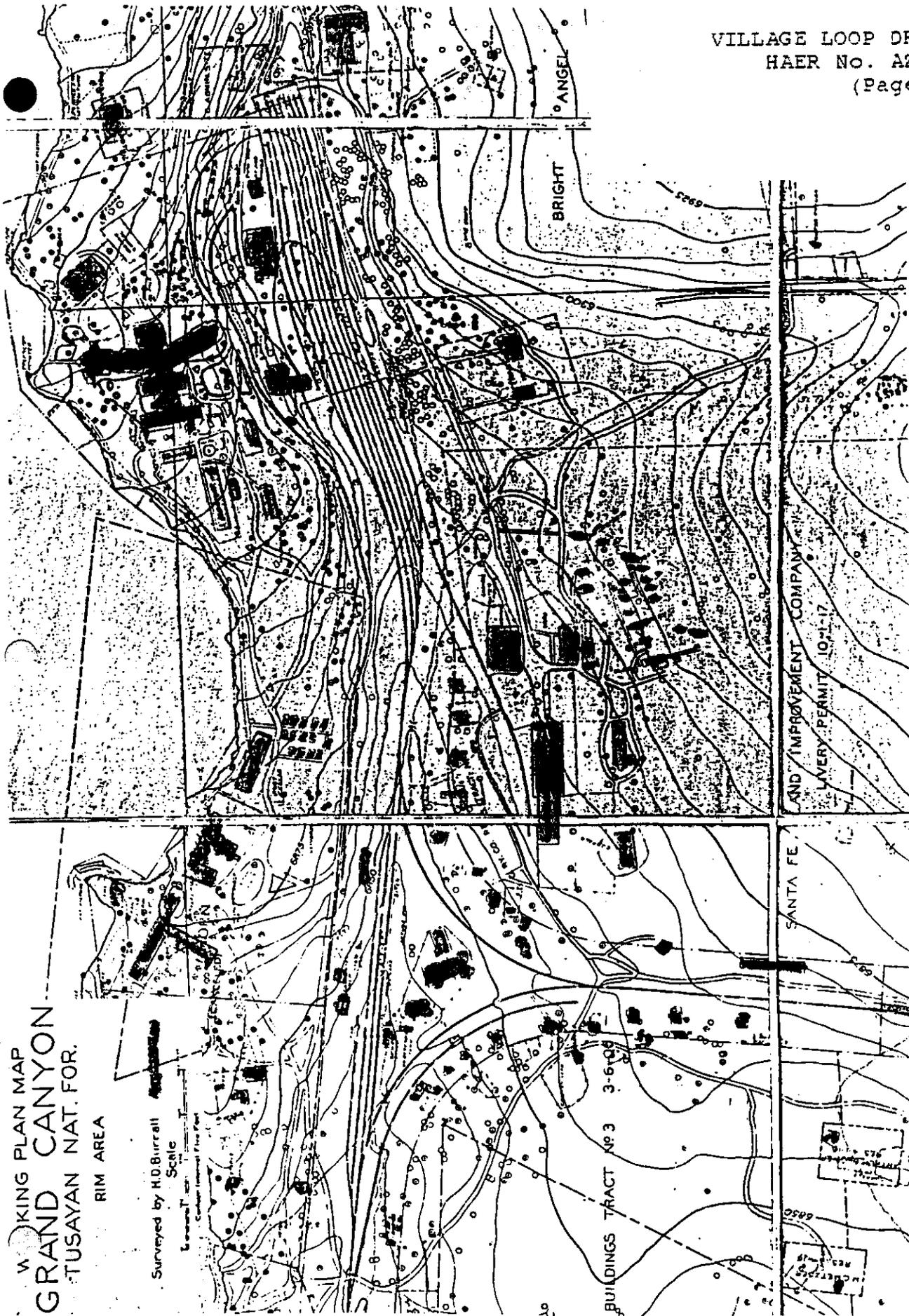
almost without form. The miscellaneous buildings are scattered at random over the land. There are no streets. Two county roads have wandered aimlessly into the territory, where they seem to have lost their way. They meander helplessly here and there without reaching any particular points and without serving as boundaries to any blocks of land.³

Waugh was referring to formal roads, of course, since he could hardly have overlooked the wagon tracks all around him. What Waugh had in mind was development of a formal community, laid out such that major thoroughfares would delineate civic, residential, administrative, and accommodation zones. Although W.R. Mattoon, a forest examiner for the USFS, had written a planning document as early as 1909, he had directed his attention to the entire national monument with little mention of the emerging village. Forest Supervisor Don P. Johnston and Forest Examiner Aldo Leopold had also written a "Grand Canyon Working Plan" before 1917 and updated the document to that year. Waugh, however, concentrated on village development.

WORKING PLAN MAP
GRAND CANYON
TUSAYAN NAT. FOR.

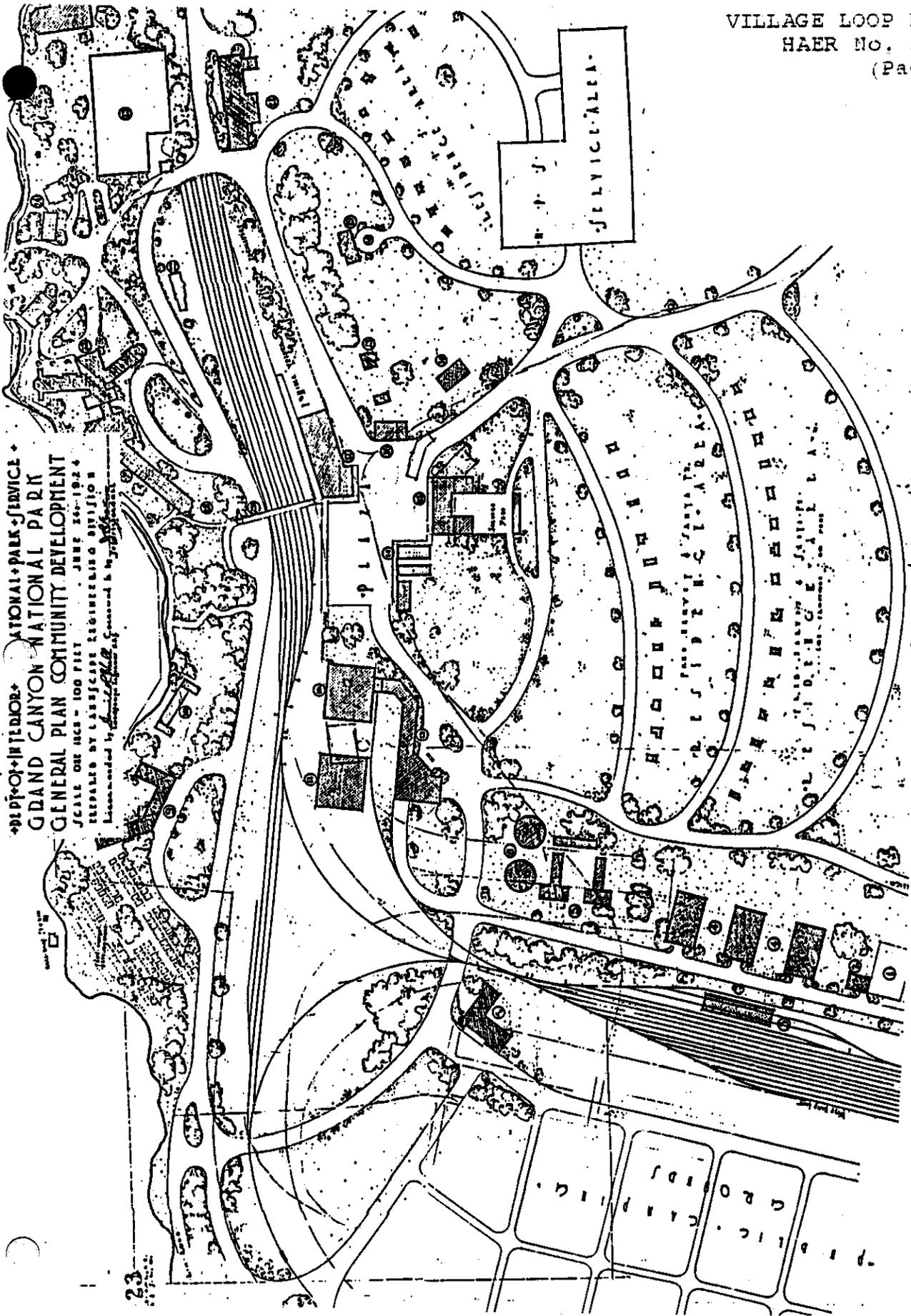
RIM AREA

Surveyed by H.D. Birrell
Scale



VILLAGE LOOP DRIVE
HAER No. AZ-41
(Page 4)

Figure 1. Map of Grand Canyon Village, 1917. Note the numerous roads and the formative outlines of a village loop road around the tracks. (GCNP, Prof. Services)



DEPT. OF INTERIOR
NATIONAL PARK SERVICE
GRAND CANYON NATIONAL PARK
GENERAL PLAN COMMUNITY DEVELOPMENT
SCALE ONE INCH = 100 FEET JUNE 24-1924
PREPARED BY THE SCENIC ENGINEERING DIVISION
Recommended by the Planning Commission to the Director

Figure 2: Design architect's concept of the development of Grand Canyon Village from the 1924 Master Plan. Note the fully-developed concept of a village loop road. (GCNP, Prof. Services)

Waugh's simple, hand-drawn map plan of the village did not represent anything new in the way of roads, but for the first time emphasized a village loop by eliminating myriad spur roads found throughout the village. This is the earliest map found which clearly depicts a village loop drive closely approximating today's alignment. Waugh suggested the U.S. Forest Service retain as major thoroughfares the roads from Rowes Well and Hermit Rest (Hermit Rim Road), which intersected at the west end of the village then continued on to the depot. These are the earliest west and northwest alignments of today's Village Loop. He also rated as important the "short link of road crossing from north to south at the end of the railroad trackage and running thence westerly to the company stables," the earliest east and southeast alignments of today's Village Loop.

Waugh's plan was the last prepared by the forest service, which had clearly tried to bring order to a burgeoning Grand Canyon Village since assuming management responsibilities in 1908. In 1919, the NPS took control of the newly-created Grand Canyon National Park, and soon grasped the park's infrastructural inadequacies, principally insufficient accommodations and a network of wagon roads in the early years of the automobile era. NPS and concessioner concerns by 1922 prompted the Santa Fe Railroad to hire the Chicago architectural firm of Graham, Anderson, Probst, and White to design a new Grand Canyon Village. Design architect Pierce Anderson developed a Grand Canyon Master Plan in 1924 with the assistance of NPS Chief Landscape Engineer Daniel Hull, other architects and engineers of the NPS and Santa Fe, GCNP Superintendent W.W. Crosby, and GCNP engineer Minor R. Tillotson. The NPS adopted the plan in 1924 and with periodic modifications and consistent leadership by Tillotson, who served as park engineer from 1923 to 1927 and park superintendent from 1927-1939, it provided a blueprint for village (and road) development through the years 1924-39.⁴

The 1924 master plan delineated civic, residential, visitor, and industrial zones using the existing railroad tracks and two new roads as lines of separation. Borrowing from Waugh's plan for road development, a new park access road (today's Center Road) would proceed south from the tracks and also serve to separate concessioner from NPS residential districts. Curvilinear minor roads, also suggested by Waugh, would penetrate these residential districts (today's Apache, Boulder, and Tonto streets survive). An east-west loop road (major portions of today's Village Loop Drive) would parallel both sides of the tracks and separate the industrial zone along the tracks from the visitor zone along the Canyon rim. It would also separate the industrial zone from the residential zone to the south. With few variations, these roads were constructed to automotive standards between 1925 and 1939 and remain today essentially along the alignment of those years.⁵

CONSTRUCTION

As mentioned above, a partial roadway of sorts formed a loop around the railroad tracks as early as 1909, and a complete loop encircled the area by 1917. Only with the development of the 1924 master plan, however, did the concept of a village loop drive constructed to automotive standards begin to emerge. Further, NPS and BPR planners did not address the need as a whole, that is, they did not immediately embark on a road project that would identify the loop drive as a discrete roadway. Initial development resulted from three separate projects, two related to other major roads described within the master plan and one which connected these two segments on the west and southwest as campground approaches.

The first section of Village Loop Drive constructed to automotive standards entailed a 2000-foot connection between the northern terminus of the original (1928) South Entrance Road and the beginning of the "Grand Canyon-Grand View-Desert View Highway" (East Rim Drive). In today's terms, this is the southeastern section of Village Loop Drive, running east from the Center Road intersection at the Ranger Ops building as a "divided highway" to the area between the Grand Canyon Lodges' administrative offices and 1921 superintendent's residence that marks the end of the 1950s-constructed South Entrance Road. This connection allowed traffic to move easily from the south entrance through the eastern edge of Grand Canyon Village and on to the eastern portion of the park. It also intersected with the old Hermit Rim Road (constructed in 1911-13 by the Santa Fe Land Improvement Company, see HAER No. AZ-42) which permitted motorists to travel eight miles along the scenic drive to the west as far as Hermit Rest.

Original survey of this small segment of the drive was completed in 1925 as the terminal section of Route #2, South Entrance Road. Engineers relocated and redesigned this segment in 1928 as the Route #2 project was nearing completion. New design called for two parallel 16'-wide lanes with a 30'-wide intervening island designed for visitor parking. Landscape architects carefully marked trees to be saved along the route; in fact, designed the road to pass unobtrusively beneath a canopy of old growth ponderosa pines.⁶

This project was begun in July 1928 under the direction of BPR Associate Highway Engineer W.R.F. Wallace with NPS day labor forces and NPS equipment. Crews first cleared the route, relocated sewer and water lines, and removed a residence along the way. They then completed grading operations using two "30" caterpillar tractors, an 8' blade grader, wheel scrapers, plows,

and rosters. They completed the south lane in early September and opened it to traffic while work progressed on the north lane. Park forces completed grading by September 15th using horse-drawn equipment for fine grading and other finishing work. The task of surfacing was turned over to the contractor on the South Entrance Road project, James Vallandingham, who completed this work in September. Park crews performed cleanup operations including clearing of rubble and rounding of cut slopes in December 1928.

Engineer Wallace expressed his pleasure for this project, the first "double road" segment of roadway within Grand Canyon National Park and the first to use a landscaped island to help channel traffic along an intended route. Wallace also noted that the "entire plan of this double roadway was designed to fit in with Park Service plans for future development," which it did as the first link in a new village loop automotive roadway. It also joined the new south entrance and Grandview roads with easy curves. Construction photographs indicate that today's alignment of this 2000-foot segment is exactly the same as that constructed in 1928. Project costs totalled only \$4,174.81.⁷

The second Village Loop segment resulted from a service roads project completed in 1930-31. With a new village campground in place at the site of today's Maswik Lodge by the middle to late 1920s, park forces realized the need to construct camp approach roads to automotive standards. BPR Engineer E.F. Strickler surveyed a loop line from the Fred Harvey mess hall (picking up on the very old Santa Fe wagon road) generally along today's alignment to the campground, thence north to the old Hermit Rim Road.

NPS road crews apparently did the work on this new automotive road. Construction required considerable clearing and excavation of solid rock as well as removal of a 21' x 115' solid concrete building. Three grade crossings were constructed across the wye railroad stem to the east of the camp, and the wye and main line tracks north of the camp. Drainage consisted of 96' of 18" corrugated metal pipe (CMP) culverts, 24' of 24" CMP culverts, and 24' of 36" CMP culverts, but locations and whether headwalls were constructed in association with the culverts are unknown. Following final grading, park forces applied a crushed-rock surface along its entire length.⁸

The third segment of Village Loop constructed to automotive standards began with surveys of the new Route #8, West Rim Drive in 1931-32. The first 2800-foot portion of the West Rim Drive project started at the intersection of the terminal portion of Route #2 and the Grandview road (described above) at the old superintendent's residence, and continued west to the campground approach road completed in 1931 at Station 28. This important

roadway north of the railroad tracks would provide easy access to tourist facilities (the visitor zone of the 1924 master plan) at the El Tovar Hotel, Bright Angel cottages, and Bright Angel Lodge, as well as replace the 20-year old Hermit Rim wagon road which had suffered from automotive traffic and inadequately accessed hotels along the rim.

W.R.F. Wallace and Senior Engineering Aid F.H. Horton completed a reconnaissance in July 1931 and preliminary survey during 1931-32, but the BPR did not finish plans and specifications until summer 1934. The BPR advertised for bids for grading and subgrade reinforcement, including all associated structures, in August and September 1934. G.R. Daley, Vinson & Pringle submitted the low bid of \$184,857.90 (92 percent of BPR estimates) for the entire 9-mile West Rim project on 13 September, and were awarded the contract on 29 September 1934. Financing for the project came from federal funds authorized by the Recovery Act of 1933.⁹

Employees of the BPR surveyed and managed the project on-site from beginning to end. These men included Associate Highway Engineer and resident foreman J.H. Brannan; F.H. Horton; Senior Levelmen A.R. Tanner, C.H. McDonald, D.L. Williams, and N.H. Stratton; and Chainmen A.F. Gray, A.D. Heath, J.H. Dresdon, H.L. Dulaney, and R.L. Greene. Their tasks included resurveying lines, interpreting plans and specifications, inspecting work, and reporting. By all accounts, the contractor worked well with the BPR and NPS forces, which resulted in a successful project completed in the allotted time.¹⁰

Several dozen projects for grading, subgrade reinforcement, and surfacing of Grand Canyon roads were completed at the park in the years 1926-36. The success of each depended in large part on the type and quality of equipment brought on-site by the contractor. Even in these years of advancing engineering technology, some builders relied on teams of horses to pull graders and other equipment, while others used old machinery which failed often. Daley, Vinson & Pringle employed only the latest technology road-building equipment, which included Fresno shovels, 1-1/2 and 3-ton trucks, "60" and "65" Caterpillar tractors equipped with blade graders and scarifiers, and an assortment of rippers, carryalls, rollers, and jackhammers. Weekly narrative reports indicate few breakdowns and efficient use of equipment as needed at various locations throughout the project.¹¹

Construction began in October 1934 at several points along the line, including the segment beginning at Station -1+00 adjacent to the Fred Harvey Garage where the 1928 village loop segment had left off. Project tasks included roadway widening, reconstruction of the railroad terminal wall, and adjustments to drainage and the nearby curbing of the prior project, thus, the extra one

hundred feet (Station -1+00 starting point).¹² New construction on the railroad terminal wall included 8'-wide steps leading from the roadside walk to the railroad tracks and a new culvert with drop inlet from the superintendent's residence under the walk in a southerly direction to a triple 30" CMP culvert at Station -0+66 (built by NPS crews in 1930-31).¹³ The terminal wall ended at Station 1+20, where it transitioned to a curb height wall continuing to Station 1+60. Between Stations 0+40 and 1+60, the lane on the south side of the roadway tapered from 20' in width to 15' to form a 30' roadway which ran from Station 1+93 to the campground approach road.¹⁴

Specifications called for realignment of the roadway from Station 1+93 to Station 9+51. This resulted in a through-traffic road near the base of the hill below the El Tovar Hotel. The old alignment which passed below the hotel immediately became a service road for the hotel and surrounding commercial structures like the Hopi House and Verkamp's Store. This separation of village traffic from services was intentional; a recognition that automobile traffic had increased steadily and that visitors had destinations other than the El Tovar Hotel. The new roadway returned to the old alignment at Station 9+51 and continued atop the old road to the campground junction near Station 28. Major improvements and structures along this segment included new subgrade, grade, and surfacing of a 30'-wide automotive road; the impressive 950'-long, masonry, downslope retaining wall with 18" roadway parapet; masonry curbing on the north side of the road; easy approaches into Bright Angel Camp at Stations 18+28 and 22+30; and for the first time, an easy wye curve to the south into the old campground road, forming the curve of the northwest portion of the emerging village loop.

The 1934-35 construction project did not directly address vegetative aspects of landscaping, but landscape architects and BPR engineers were entirely concerned for the new roadway's appearance. As to the natural landscape, this road passed along the south facing slope of Bright Angel Wash, thus vegetation--where it existed--tended to be of pinon pine, juniper, and low shrubs and grasses as it is today. Pioneer accounts and early maps suggest that this was a well-trampled area, however, open to livestock and horse grazing, numerous informal roads and paths, and a considerable amount of open trash dumping. The NPS eliminated the worst of these abuses in the 1920s and the Civilian Conservation Corps (CCC) did some downslope revegetation in the 1930s during and immediately following this project. The elimination of open-air dumps and grazing and some revegetation, combined with the more formal traffic channeling afforded by the new road, probably encouraged return to a more natural pinon-juniper landscape by the late 1930s and 1940s.

For the engineers' part, many of the road's structures were designed and built for aesthetic reasons, especially between Stations -1+00 and 16+00. From a purely engineering point of view, the railroad terminal wall, masonry curbing, long retaining wall with roadside parapet, and landscaped island immediately north of the RR depot need not have been achieved the fine appearance seen today. The project's first change order, issued 13 December 1934, called for adjustments to curb, wall, and drainage structures "to improve appearance from a landscape viewpoint" (among other pragmatic reasons).¹⁵ Construction drawings reflect preservation of certain trees along the roadside, if not the planting of others. The contract itself called for the placement of topsoil on roadside slopes to encourage natural growth, as well as cleanup tasks to remove all signs of construction. Although no photographs were found of the roadway soon after completion, pre-project photographs of the area suggest that the new roadway could have been nothing other than an improvement to the surrounding landscape.

The principal difficulty encountered in the 1934-35 project concerned excavation within the congested village area. The Santa Fe railroad and Fred Harvey Company had been developing village infrastructure for thirty years prior to this project, and in the years before NPS arrival had done so haphazardly. BPR Engineer J.H. Brannan complained that workers repeatedly struck buried steam, water, and sewer pipes for which there were no location maps. Concerning these buried structures, he added that

there is only one Santa Fe man that has any recollection of their near location and that is more or less brought back to his memory after they have been torn up.¹⁶

A further dispute between the NPS and Santa Fe entailed payment for the movement of steam pipes which would have to cross the new road. NPS and BPR upper management believed the concessioner should pay for his own inconveniences, however, Superintendent Tillotson reminded all concerned that the Santa Fe owned the land over which they were building (a 20-acre depot patent of the late nineteenth century) and a formal right-of-way had not yet been obtained. Reason prevailed, and the BPR issued a change order to build a 5' x 5' x 36'2" box culvert with masonry walls and reinforced concrete slab at Station 7+35 to serve as a water way and pipe gallery under the roadway.¹⁷

Because the 2800' segment of new roadway ran along the southern slope of Bright Angel Wash, engineers directed considerable attention to drainage structures. The 1911-13 Hermit Rim Road had no structures from Station 1+00 through 13+58, and the two culverts that existed between the latter station and the camp

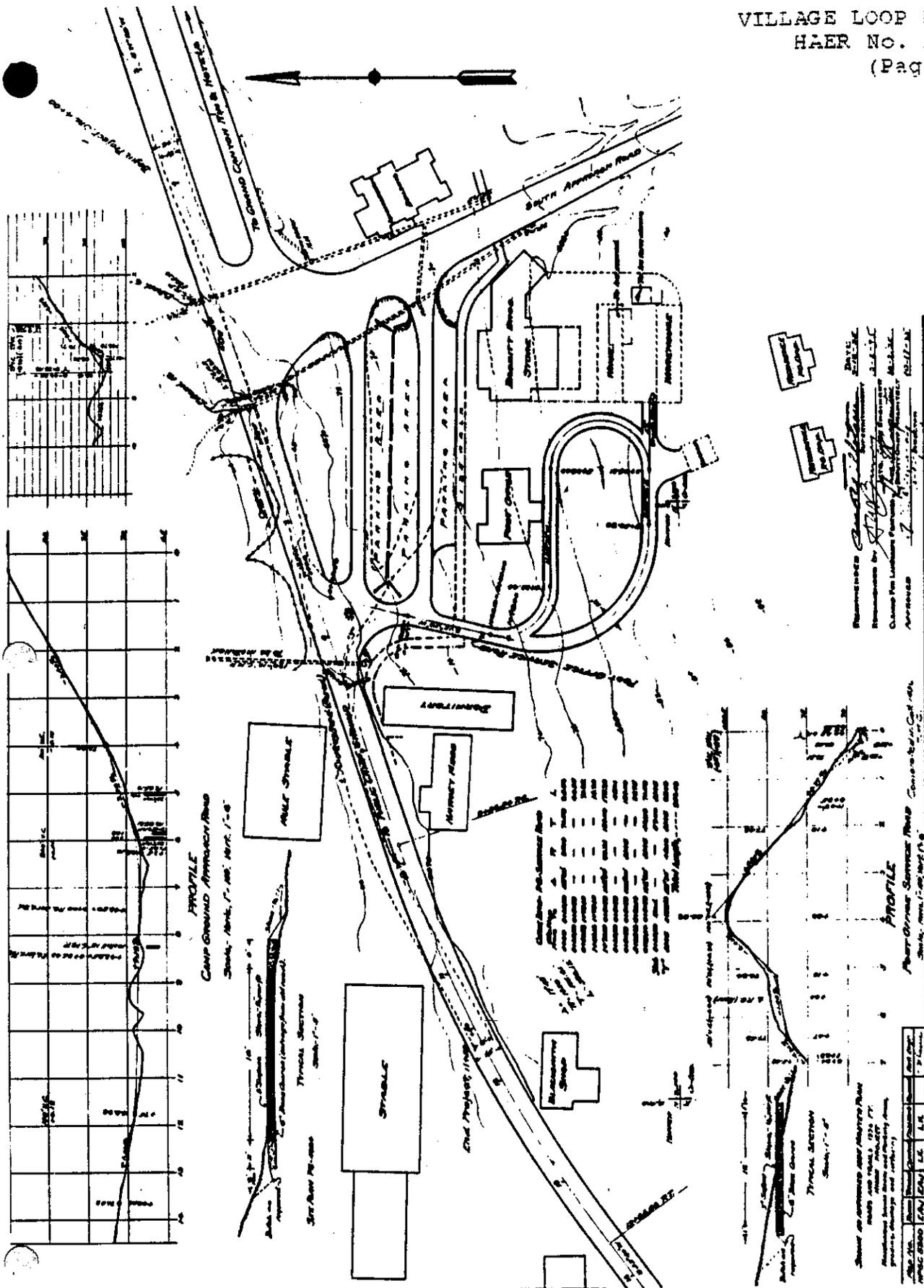


Figure 4. Park Engineer C.M. Carrel's sketch map of a 1935-36 minor roads project near Center Road with moderate roadway realignment. (Microfiche #113/5066, Prof. Services)

Prepared by *C. M. Carrel*
 Checked by *[Signature]*
 Approved by *[Signature]*
 Date *1/15/36*

Sheet No. *13*
 Project No. *113/5066*
 Date *1/15/36*

Scale	Sheet No.	Project No.	Date
1" = 100'	13	113/5066	1/15/36



Figure 6. West end of Grand Canyon Village ca. 1908. Note the early road from right to left leading to Hopi Point (later, the Hermit Rim Road), minor road across the tracks in the foreground which would develop a little farther west into the loop segment approaching the 1920s campground, and general landscape. (GRCA Image #8157, GCSC)



Figure 7. Aerial view of a portion of Village Loop Drive in 1989, facing west. Old Fred Harvey garage in foreground with Village Loop divided road leading into ponderosa cover on the left. Pre-1935 alignment of Hermit Road beneath the El Tovar on the far right, 1934-35 alignment in the middle. Bypass road (1969) in left background. (GRCA Image #16499, GCSC)



Figure 3. CCC crews surfacing the walkway beside the railroad terminal wall at the old Fred Harvey garage, September 1937. Note the landscaped traffic island on the left. This intersection with the South Entrance Road has changed little since 1935. (GRCA Image #336, GCSC)



Figure 9. Construction project of 1934-35 at the east end, facing west beyond the RR depot. Old alignment on the far right foreground. Masons at work on wall and curbing. Note the old warehouse east of the depot, no longer standing. (GRCA Image #9392, GCSC)



Figure 10. Village Loop in July 1953. Note depot and parking area in the foreground. Divided road segment of Village Loop in the background with parking among the trees of the island. (GRCA Image #2574, GCSC)



Figure 11. Village Loop construction at Station 26, facing southeast from the first pullout of West Rim Drive, 1935. Masons working on walls and curbs. (GRCA Image #2981, GCSC)



Figure 12. Public Works Administration crews at work on 1935-36 minor roads project (Figure 4). This photograph is facing east, with the divided road in the background. Note the mule corral on the far left of the equipment. (GRCA Image #14017, GCSC)



Figure 13. Village Loop facing west to the mule corral and barn from the intersection with Center Road, ca. 1935. Note the highway signs on right, small traffic island on left. Bypass road today runs through the corral area. (GRCA Image #2977, GCSC)

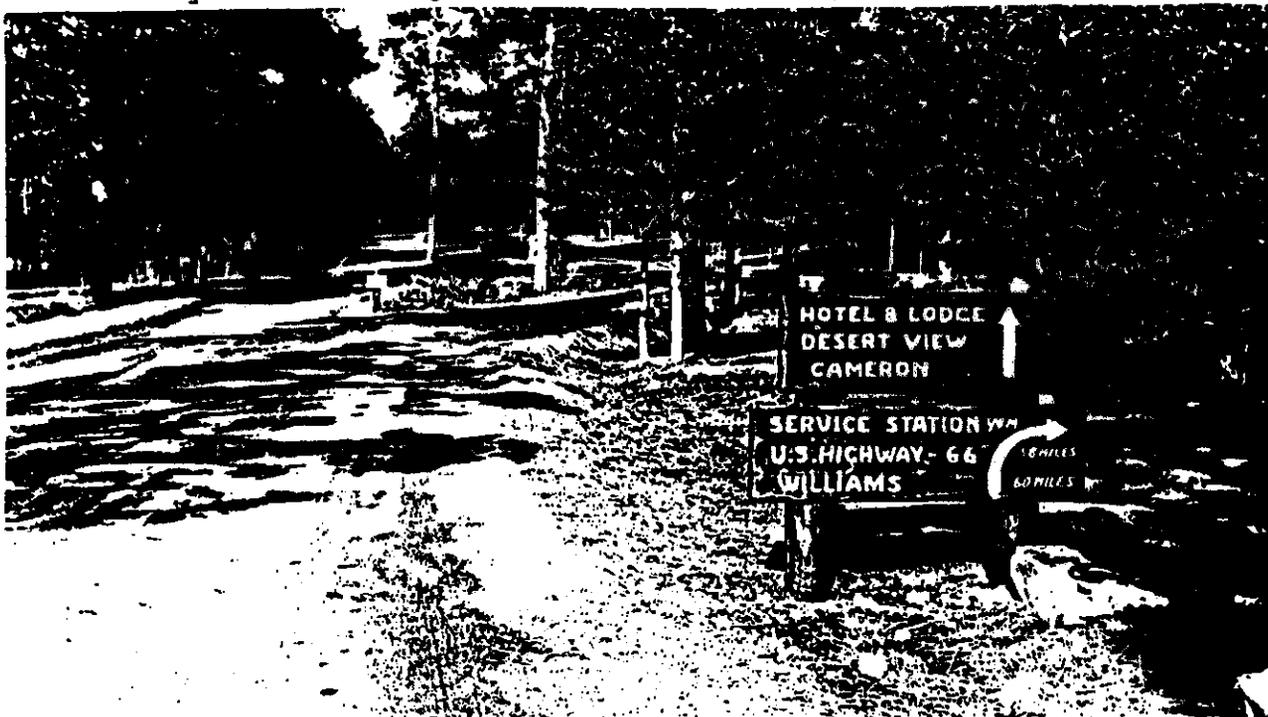


Figure 14. Village Loop facing east with the divided road in background, 1947. Note the sign types and traffic island at intersection with Center road which, in that year, is still the south entrance road. (GRCA Image #14614 & #9492, GCSC)



Figure 15. Example of fine masonry headwall near the Fred Harvey garage, built by CCC crews in 1933-34. (CCC Reports photo, GCSC)



Figure 16. CCC landscaping project between Village Loop and the RR tracks, late 1934. Note the RR depot through the trees. (CCC Reports photo, GCSC)



Figure 17-18. Construction of culvert headwall on the southeast corner of Village Loop and Center Road, September 1934. This headwall is being replaced in 1994 construction project. (CCC Reports photo, GCSC)



approach road had to be replaced. New CMP culverts were added at the following locations: a 24" culvert from Station -0+66 to 1+11; 18" culverts with drop inlets at 1+20, 1+57, 6+02, 9+50, 14+00, 22+00 (with masonry headwalls), and 25+50 (with one masonry headwall); and an 18" culvert with masonry headwalls at 18+38. In addition, a 56' paved gutter on the north side of the road at Station 7+50 was added to the original specifications to catch the runoff from the El Tovar area. The overall result was a much better-drained roadway than the old Hermit Rim Road segment.⁸

Reconstruction of Hermit Rim Road in 1935 completed the metamorphosis of disconnected wagon roads to an integrated automotive loop, although reports of the time do not refer to a "village loop road." A 1935 village map identifies the loop in a prominent manner, however, and comparison with the 1924 Master Plan sketch map clearly suggests that the loop's final form was not haphazard.

Major Repairs and Alterations

During 1935-36, NPS forces completed Federal Project 549, reconstruction of the "Campground Approach Road" from Center Road at today's Ranger Ops building to the campground 1/4 mile west. This work consisted of realignment, grading, drainage, and ditching along the road completed in 1931, and cost only \$1,500. The current alignment of this southern and southwestern segment of Village Loop, as well as the remainder of the road, dates to 1936. A 1936 map of the railroad's right of way--which depicts nearly the entire Village Loop Drive along with adjacent buildings--confirms that the only alignment modifications since that year may have been occasional widening of the existing roadway or very slight variances. No evidence of later, major reconstruction turned up among superintendents' annual reports, various park officials' monthly reports, nor completion reports.

Although Village Loop retains its alignment to 1936, there have been numerous changes to roadside features since that year. Most of these were accomplished during the years 1933 through 1941 by CCC and other public works crews. Improvements were, in the words of Superintendents Tillotson and Bryant, "too numerous to mention," but included construction of culvert headwalls, road retaining walls, and pedestrian footpaths; planting of trees, shrubs, wildflowers, and native grasses along the roadway; ditch clearing and rounding, slope cutting and rounding, and brush clearing. Public works crews worked mostly along the roadway from today's Grand Canyon Lodges' administrative offices, west to (and within) the old campground, and north to the intersection

with West Rim Drive. A few examples of this work are noted in the description section of this history.

During World War II years, visitation to Grand Canyon National Park diminished to 1920s levels (less than 80,000 in each year). Many facilities closed in 1942, including the Bright Angel Lodge and public campgrounds along Village Loop Drive, and did not reopen until 1946. Superintendents' reports during these years and until the late 1940s reveal little funding available for road repairs and maintenance. It is likely that Village Loop received only the standard ditch clearing and asphaltic patching afforded to park roads in general.

Following the war, visitation to the park figuratively exploded. As early as 1946, NPS administrators began to plan a new South Entrance Road (to replace the 1928 entrance, today's Center Road) "so that visitors will bypass the present confusion of roads in the village and reach the rim of the Canyon more easily." H.C. Bryant's words reflected the confusion which came not from increased numbers of roads but from escalating visitor numbers which reached more than 1/2 million (611,000) for the first time in the following travel year. In 1949-50, Bryant echoed visitors' complaints about the "complete inadequacy of parking facilities," especially in the bottleneck areas of Babbitt's Store (at Village Loop & Center Road) and below the El Tovar. In 1953, it was apparent to everyone that services, accommodations, and roads were inadequate as well as outmoded. The situation, which effected most of the national parks, eventually dawned on federal legislators and resulted in a massive infrastructural rebuilding program called Mission 66.²¹

Although the park commenced reconstruction of some roads such as East Rim Drive and the South Entrance Road during the 1950s, Mission 66 meant only better maintenance for many park roads. NPS crews finally had the money to acquire better equipment and began periodic maintenance programs which, for Village Loop Drive, meant chip sealing every 7-10 years along with periodic patching, curb and wall repair, ditch clearing, and striping. Increased funds did not lead to realignments nor to roadway widening.

Improved maintenance could not solve the traffic problems plaguing Village Loop Drive. As the principal village service road, nearly every visitor to the national park ended up on the circle route, if only to see what lay down the road from the new (1950s) visitor center. Park administrators implemented two concurrent measures--one structural, one regulatory--to alleviate the problem. From November 1968 through January 1971, day labor forces constructed the "Motor Lodge By-Pass Road," a 10'-wide, 0.3 mile-long roadway with a 0'-3" base and 0'-2" bituminous

surface which ran (and still runs) from the western end of Village Loop at the railroad tracks to the east end of the Fred Harvey barn across from the magistrate's office. This road effectively "tightened the loop" and hastened motorists' escape from the village by allowing them to bypass congestion at the Maswik Lodge and Fred Harvey industrial areas.

The nonstructural measure aimed at alleviating traffic problems came with Superintendent Howard B. Stricklin's order that as of 3 February 1969, the northern half of Village Loop would become a one way street for westbound traffic. The 1969 regulation was a bit more restrictive than the traffic pattern in force today, that is, traffic heading west from the visitor center toward the village could not turn left at the old superintendent's residence to access the residential area, but had to travel around the entire loop. The south side of Village Loop from Navajo Street on the east to the railroad tracks and bypass road on the west remained open to two way traffic. This regulation went into effect at the same time motorists began to use the bypass road, thus, overall congestion was no doubt greatly relieved.

In recent years, the park has begun to improve Village Loop Drive is a series of projects addressing relatively small segments. The roadway east and northeast from the Maswik Lodge to the beginning of the mule corrals evidences widening, resurfacing, and masonry curbing dating to the 1980s. A resurfacing project which also includes minor widening and massive masonry curbing, in progress as of this writing, continues from the mule corrals eastward half way along the divided road which approaches the Grand Canyon Lodges' building. Plans for the next several years include resurfacing from the Maswik Lodge northward around the loop as far as the Bright Angel Lodge. These projects represent little if any variance from the historic alignment, but with extensive curbing, broad lanes, and use of drop inlet culverts seem to reflect a movement toward the concept of an "urban roadway" employed by BPR and NPS planners on the 1934-35 project.

DESCRIPTION

For its relatively short distance--approximately 1.25 miles--Village Loop Drive is one "busy" roadway in many ways. Unlike other park roads which, for the most part, pass through more or less natural and (forgive me) homogeneous settings, Village Loop is a city street that attacks the senses with varied sights, sounds, and scents. The built landscape competes with the natural, while the sheer volume of motor vehicles and people cloud the images. For these reasons, description first addresses natural settings, built settings, and traffic patterns before turning to roadway features and structures.

Natural Landscape

Village Loop Drive is not a scenic roadway in fact nor in intent because it is constructed as a service road below the level of the Canyon's south rim within the shallow Bright Angel Wash. The wash is a broad drainage with gentle slopes to the south and a steeper slope to the north, which flows intermittently from east to west, then curves southerly away from the rim. Along the bottom of this wash from the south, the Atchison, Topeka & Santa Fe Railroad built the terminal portion of its Grand Canyon Railway and depot. Over the years, Village Loop Drive has evolved slightly above the bottom of the wash surrounding the depot and tracks, well above the flood plain on north and south, but crossing the plain on the east and west. The terrain thus dictates drainage structures which funnel runoff under the roadway to the narrow, shallow, artificially-excavated ditch immediately south of the tracks.

The topographical setting guarantees few scenic vistas beyond the confines of the wash; the single exception, a brief glimpse of the limestone cliffs beneath Hopi Hill to the north-northwest. The natural landscape is fairly lush, however, which is not always the case near the edge of Grand Canyon. Along the north facing slope (south segment of the roadway), predominant vegetation is ponderosa pine with a modicum of pinon pine and juniper. Undergrowth is sparse, which is a natural condition for ponderosa forest, although here it is largely attributable to deliberate planning of landscape architects and the efforts of CCC workers and later park forces who have replaced wildfires as determining agents.

As Bright Angel Wash is crossed to the steeper south-facing slope (north segment of the roadway), natural vegetation transitions to predominantly pinon pine and juniper with an abundance of low shrubs and grasses and some cactus. This, too, is the natural vegetative condition of south-facing slopes at these elevations (generally, 6850' along the roadway), but is also owed concerted efforts of landscape architects and park workers. As mentioned earlier, photographs of the village in the early decades of this century graphically illustrate effects of unregulated land use and development: a trampled landscape, informal roads and paths, far fewer trees than today. Park regulations which eliminated grazing and channeled traffic combined with the efforts of CCC and other public works laborers to reverse this trend by the 1930s. CCC workers alone planted many thousands of trees and shrubs while obliterating old roads.

Built Landscape

Efforts to return the vegetative landscape to something approaching natural conditions has always been hampered by steadily increasing numbers of park visitors and coincident needs for an expanding infrastructure. Village Loop Drive passes through the very heart of the village which must serve and accommodate tens of thousands of transients on any given day during the peak summer months. Since the NPS has chosen to concentrate these numbers within the few square miles of village development, roadside views are understandably cluttered with all manner of constructions.

Considering the self-imposed challenge, and despite the clutter, the NPS has done an admirable job of managing construction projects within the village since 1919, and preserving the best of its historic village structures. Overlooking constructions of the aesthetically-destitute Mission 66 period, the motorist along Village Loop Drive cannot help but be drawn to fine examples of rustic architecture at every turn. Pre-World War II examples immediately along the roadway include the old Fred Harvey garage (1910s), superintendents' residence (1921), El Tovar Hotel (1903-05), railroad depot (ca. 1909), Fred Harvey men's (1936) and women's (1937) dormitories, Bright Angel Lodge (1935), the old power house (1910s), mule barn, magistrate's office, and post office (all 1910s-1920s), Ranger Ops building (1929), and the old hospital building (1931).

Unfortunately out of site of the roadway, but within a hundred paces, are Verkamp's Store (1905), Hopi House (1905), the Lookout (1914), Kolb photographic studio (1904-1925), and dozens of Fred Harvey and NPS rustic bungalow residences along adjacent Apache and Boulder streets dating to the 1920s and 1930s. Five historic structures along Village Loop or within a hundred yards of the roadway reflect the imprint of Mary Elizabeth Jane Colter, one of our nation's first woman architects and a master of the rustic and southwestern native styles. Few if any national parks boast such a concentration of historic buildings; no other national park road can claim so many historic roadside features.

Traffic

The efforts of NPS administrators to preserve and protect the natural and built landscape features of Grand Canyon Village are largely negated by vehicle types and numbers along Village Loop Drive. At any given moment during summer daylight hours, one can sit back and watch a carnival of automobiles, some pulling boats or trailers; motorhomes; Fred Harvey's, Navahopi Tours, and other scenic buses; village trams, motorcycles, and NPS garbage trucks pass any given point. Transient motorists (most of the traffic) move hesitantly, trying to figure out where they are, where they

are going, where to park, where the Canyon is, and what they have gotten themselves into. Experienced drivers of scenic buses and local residents ride their bumpers impatiently. It is a roadway of last minute turns without signals and vehicles inexplicably immobile in the center of the road. The landscape to the average park visitor is the nearest parking space. No one has a fun time along Village Loop Drive, least of all pedestrians and bicyclists whose life expectancies are brief anywhere near the roadway.

The change to one-way traffic on the north side of Village Loop in 1969 no doubt eased traffic congestion, but at the same time caused a few interesting traffic situations. For one thing, the initial intersection beside the old superintendent's residence is still tricky and hazardous. Traffic entering Village Loop from the east must keep an eye out for vehicles descending the steep service road from El Tovar where gravity sometimes overrules the regulatory stop sign. Many others entering this intersection imagine a stop sign along the main roadway that is not there, begging contact from behind. Others miss the left hand turn beyond the traffic island and soon realize that they are doomed to circumnavigate the village.

The motorist who successfully negotiates the initial intersection and is funneled into the one way street often misses his turn--say, to the Thunderbird Lodge--and is also in for an interesting round trip to regain the opportunity. Along the northern segment of the loop he will have to be wary of pedestrians who walk from among the parallel-parked cars which line the north side of the roadway. Rounding the curve to the south and crossing the railroad tracks, he will probably be unaware of the advantages of the bypass road on the left, or will stop in the middle of the road and ponder the likelihood that it leads to where he wants to be. He will be distracted by the nearly-tame deer at this point and very likely leave his car in the roadway while family members get out to take a few snapshots.

Back in the car and rejecting the bypass (unwisely), he continues south to the congested Maswik Lodge area where he is confronted with a "T" intersection. Left or right? Probably left (the "kennels" does not sound promising), and across the tracks to another "T" intersection. Right seems to dead end at the new Maswik railroad depot, so he goes left through an area of road construction (fairly well guaranteed at some point along the loop in any one summer), past Center Road, and on to the intersection of origin. Here vehicles pause, thankfully, because there is a stop sign, but for an inordinate amount of time as they ponder seriously whether to try it again or turn right and leave the park. Our driver, if he wants to leave the park (strictly speaking), will have to go around the loop again because by

pulling up to the stop sign he has missed the wye curve leading east.

The author has paused along the roadway for an hour and seen the same automobile pass that point three or four times. The driver was probably looking for a parking space because other than becoming lost, or getting rear-ended, parking is the major problem along Village Loop Drive. Approaching from the South Entrance Road, knowing drivers turn right immediately up to the parking lot between Hopi House and Verkamp' store, but it a poor bet that an empty space will be found. Even the illegal parking here which adds about 10 percent to capacity is usually filled. Farther down Village Loop, parallel parking (most of it legal) takes up the right side of the roadway, but demand ensures that the more difficult operation of stopping and backing into a spot be tried. The historic masonry curbing along here is blackened, glossy, and coming apart; finely-executed parallel parking is a lost art.

Parking behind the Kachina and Thunderbird lodges is possible, but not obvious, and in any event frowned upon unless staying at the lodge. Many motorists are drawn to the large and highly visible parking lot in front of the Bright Angel Lodge, but disconcerted by the fact that the first opening into the lot is reserved for buses and exiting vehicles. Most obey the restriction, but not all. Those who are law-abiding and continue down the road often miss the entrance at the west side of the lot since parallel parking along the roadway obscures the entrance driveway. Those who find it and enter have a fifty-fifty chance of waiting with others for someone to leave.

Several parking choices remain along Village Loop Drive. The best is the lot within the loop just west of the railroad depot. This is accessed by the bypass road from the western end of Village Loop and a parking sign points in the right direction. This gravel-surfaced lot is one of the better bets to find parking, and is probably tried by most motorists by the second or third go round. The remaining parking areas line both sides of the road from the railroad wye tracks south to the Maswik Lodge, and within the small lot immediately north-northwest of the lodge. One final lot which has recently opened up is beside the new Maswik train depot. This is a vast sea of open space compared to other parking opportunities along Village Loop, but so far seems rarely used.

Roadway Features

The best way to stop and note roadway features along Village Loop Drive is on foot, beginning at the landscaped, masonry-curbed

island at the end of South Entrance Road. The island predates 1934-35 Village Loop construction, and probably dates to the late 1920s when this segment of the entrance road (then, a portion of East Rim Drive) was first constructed. Masonry curbing, walkway, and masonry wall with roadside parapet were completed in 1935 by Daley, Vincent & Pringle masons. The wall serves as a terminal point for the railroad yard and as a downslope retaining wall for the roadway. Its height varies from 4'-0" to 6'-1/2" depending on the uneven terrain. The stairway through the wall up to road level contains five steps in a 2-3-2-3-2 rectangular block pattern from bottom to top. The 3'-wide walk has a bituminous surface. The 3'-9"-wide x 4'-6"-high rectangular wall opening near the north side was cut in 1936-37 to serve as a conduit for water, electric, and sewer lines. The triple culvert and masonry headwall at the south end of the wall was built in 1930-31 by park forces, but may have been altered or reconstructed by CCC forces ca. 1936.²⁵

As the roadway curves to the west it passes the service road to the El Tovar (Hermit Road's old alignment) and narrows through the use of masonry wall and curbing, then post and block W-beam guardrail, to the masonry-curbed landscaped island beside the railroad depot. At this point the roadway is fifteen feet wide. Prior to 1969, the road used to pass on both sides of the island, accounting for today's 15'-wide gravel drive immediately north of the railroad depot walkway. The NPS built the guardrail in 1969 or soon thereafter when traffic was changed to one way in a westerly direction. All masonry walls and curbs through this section, on both sides of Village Loop as well as the island, date to 1935.²⁶ The stacked-stone retaining wall beside the El Tovar service road dates to 1935 or earlier, but the unfortunate-looking, colored-concrete top extension was added much later to form a curb above multiple surface overlays of the service roadway.

At the depot parking area the road as constructed in 1935 broadened to form a parking area with masonry curbs extending approximately fifteen feet south from the southwest tip of the building, then west to Station 6+00, then north to the roadway, then west another 50 feet to the beginning of the long downslope retaining wall. An iron fence extended fifteen feet south of the curbing, then ran west to a point opposite Station 6+50, then north to meet the roadway at the beginning of the long wall.²⁷ Today's parking area resembles the historic description, but tourists are not allowed to park here.

West of the depot parking area the roadway rises in a gentle grade where the contractor cut into the north slope slightly above the floodplain. Here, at Station 6+50, the impressive, ashlar-masonry, downslope retaining wall begins and continues to

Station 16+00, as constructed in 1935. There are cuts in this wall at several locations where culverts, steam and ammonia lines, and other pipes pass under the road. The wall rises 18" above the road surface, forming a parapet and curb on the south side to Station 16.

As constructed in 1935, there were no walks on the south nor north sides of the roadway from Station 1+20 at the end of the terminal wall walkway to the curve into the campground approach road at Station 27+82; just a 30'-wide roadway between the foot of the long wall parapet and the masonry curbing on the north side of the road. Curbing on the left side of the roadway ran continuously from the end of the long wall to the campground approach road at Station 26+60. Curbing on the right side of the road continued from Station 1+80 (at the El Tovar service road) to Station 29+13 (at the beginning of West Rim Drive), with breaks at Station 8+40 - 9+51 (for the west end of the El Tovar service road, old Hermit Road alignment), Station 18+28 - 18+69 (B.A. Lodge entrance), and Station 22+10 - 22+50 (second B.A. entrance). Construction drawings and narrative reports do not suggest parallel parking along the road, thus, this segment of Village Loop likely seemed a broad boulevard with plenty of opportunities to pull over to the right and admire the landscape.

Today, the masonry walls, curbing, and roadway are as constructed in 1935 with a few additions and deletions. On the south side of the road a painted white line four feet from the parapet signifies a walkway, not necessarily seen nor respected by all motorists. On the north side, approximately eight feet is taken up by parallel-parked vehicles. With these subtractions, the useable one-way roadway is approximately 18' wide. A modern bituminous-surfaced walkway runs on the north side of the road, sometimes immediately next to the road, sometimes up the slope a bit. Also, with the addition of the Kachina and Thunderbird lodges in more recent years, the original curbing on the north side was cut to allow entrances to these facilities. The iron staircase at the end of the long wall at Station 16+00 leading from the roadway to the railroad tracks is very new, added in 1992 along with a painted walkway across the road to the north side. The monolithic rock guardrail and 18"-high masonry wall in front of the parking lot at the Bright Angel Lodge replace the original low masonry curbing. CCC crews likely substituted the former for the latter about 1936 when Fred Harvey completed the new Bright Angel Lodge.

As the roadway approaches the first curve of the loop at the intersection with West Rim Drive, it separates into three lanes. The north lane is reserved for the park shuttle bus. The center lane in all but the summer months leads traffic onto West Rim Drive; in summer months it serves no purpose and motorists use it

as an extra left turn lane. The south (inside) lane leads traffic into the curve. This 108-degree, 100'-radius curve was aligned during the 1934-35 construction project, and ended just north of the Santa Fe main line tracks.⁶ Today, there is a railroad-tie railing, a 4' or 5'-wide walkway, and masonry curbing on the left (east) side of this curve, but the curbing is mostly buried by chip-sealing. The age of the railing is unknown. The landscaped, masonry-curbed traffic island which the contractor built at the West Rim intersection is gone, replaced by an island painted atop the sea of asphalt at this point. A wooden traffic barrier fence with a swinging gate blocks all but shuttles, scenic tour buses, and purposeful motorists from accessing West Rim Drive.

Village Loop Drive from the end of the first curve to the Maswik Lodge served historically as one of two campground approach roads. As mentioned earlier, a 1935 map shows that this segment of the loop was in place along today's alignment by 1935. From the 1920s until replacement by the Maswik Lodge, camp and cabin facilities encompassed much of this area. Camp spaces began on the west side at the point where the roadway straightens to approach today's lodge, and continued to the south and west to encompass the entire developed area of today's lodge. Dozens of camp cabins stood on the east and north sides of Village Loop (some are still there), and dozens more stood on the south side of the loop, east of today's main lodge building (all gone). At today's lodge there is a T-intersection and stop sign; as existing in 1935, this was more of a sharp curve to the east. This intersection in 1935 offered a gas station on the northeast corner, a campground attendant's building on the northwest corner, and a camp office and cafeteria on the southeast corner.

Today this segment of roadway from the West Rim Drive intersection to Maswik Lodge is the poorest along Village Loop Drive. It maintains a 22'-width its entire length (the narrowest point of the entire loop) and there appears to be no subgrade; just asphalt poured over a bladed roadway without curbing. The asphalt is raveling at the edges. Just south of the main line tracks, the bypass road takes off to the east, passing north of the mule barn and old power house before ending at Village Loop in front of the magistrate's office. The main roadway continues south as a one way road and just before it crosses the wye tracks, two double-culvert masonry headwalls enclose the roadway. The headwalls are of uncut stone, crudely mortared, and are crumbling. The one on the west side measures 8' high, 14'-5" long, and 2' thick (48" CMPs). Several more 1930s-vintage culverts with masonry headwalls line the west side of Village Loop along the segment which at one time fronted the campground. These headwalls and those nearer the railroad tracks, built

either by the CCC or park forces, confirm the historic road alignment.

From the wye tracks southward, automobiles parallel park along both sides of the roadway, narrowing the traffic lane somewhat. A little farther south on the west side a gravel pullout allows motorists to park diagonally. As Village Loop reaches the cabin area, parking is prohibited along the roadway to accommodate two-way traffic which begins at this point and continues to the "T"-intersection in front of the lodge.

Village Loop from the Maswik Lodge intersection, across the wye tracks, and on to the next intersection with stop sign has been reconstructed in the last ten years or so. Here the roadway on both sides is without shoulders and is lined with modern NPS masonry curbing consisting of sharply-cut sandstone. The roadway is 26' wide curb to curb. A modern concrete walkway lines the south side from the wye tracks to the next intersection. A masonry-curbed island rises in the center of the roadway about forty yards short of the stop sign. This segment of Village Loop was realigned slightly during 1980s construction, if for no other reason than to configure the second "T"-intersection.

Village Loop continues left at the stop sign, and for approximately one hundred yards toward the mule barn, appears to be part of the 1980s construction. The roadway is at first 30' wide and lined with modern masonry curbing, then narrows to 26' feet in width for a short distance before abruptly lapsing into disrepair and reconstruction, now in progress. Today's project appears similar to that last described: minor widening, total resurfacing, and curbing to transform the old road into an "urban street." A by-product of this project is the elimination of a number of historic CCC culvert headwalls and one retaining wall and their replacement with modern masonry walls (see HAER No. AZ-35 and associated reports). The new project continues beyond the intersection with Center Road about half-way into the area of the divided road. Alignment remains unchanged and the natural landscape is unaffected other than the usual construction scars beside the roadway. Workers are also building a 9' to 10'-wide, stone-lined walkway which crosses Village Loop about forty feet east of the Center Road intersection and continues down to the foot bridge over Bright Angel Wash.

Engineers designed the divided roadway, called the "double road" when built in 1928, to accommodate parking. Somewhere along the time line, that purpose gave way to a landscaped traffic island and today's construction will not change this purpose. A 4'-wide bituminous walkway parallels the road about seven feet upslope on the south side of the south lane from Ranger Ops to Navajo Street. CCC crews constructed this walk, and bordered it with

stone which is for the most part buried today. At Navajo Street, they constructed masonry steps at the end of the walk to road level, a few yards north of the interesting masonry catch basin and culvert headwall built by CWA crews in 1934.

The final yards of Village Loop Drive curve gracefully into the wye intersection formed by the island beside Grand Canyon Lodges' administrative building. The Fred Harvey Company erected this building in the 1910s to serve as a garage on the east (which it still does) and a gravity-pump gas station fronting Village Loop. The building, which predates auto road construction, is one reason why road builders configured the eastern end of the loop in this location. Its sole gas pump was removed in 1939 and the station transferred to the south entrance road (today's school bus building between Boulder and Albright streets) because scenic buses in line for gasoline impeded traffic--an early indication of traffic congestion along Village Loop Drive.

SIGNIFICANCE/CONCLUSIONS

Village Loop Drive is significant as the primary access road to tourist facilities within Grand Canyon Village. Although it derives from pioneer wagon road segments and in the first thirty years of its existence evolved somewhat haphazardly, it has since the late 1920s developed within the context of the first NPS master plan of 1924. That development illustrates its use as a delineator between visitor, industrial, concessioner residential, and NPS residential occupation zones within the village. It also reflects change over the village's nearly one hundred years from a dirt road flanked by few buildings toward the park's sole urban roadway with almost continuous adjacent structures.

Despite this evolution and growth in annual park visitation from several hundred thousand in the middle 1930s to nearly five million today, the loop retains its basic 1936 alignment and most of its historic associated structures. Some of the finer ashlar masonry constructions in the park are found in the railroad terminal wall and the 950'-long road retaining wall west of the depot. Along its 1.25-mile path, visitors can compare these structures to other elements of rustic style architecture built as a part of or simply within site of the road. These include pueblo revival buildings of the Fred Harvey Company and Mary Elizabeth Jane Colter like the old power house and women's dormitory; NPS masonry and wood administrative buildings like the superintendents' residence; cement rubble masonry headwalls of the Civilian Conservation Corps. All in all, far more than 90 percent of Grand Canyon's historic structures lie within 1/4 mile of Village Loop Drive.

The trend in recent years is to resurface and in some cases reconstruct Village Loop in small segments, and to continue the road's evolution as an urban street. Projects since the 1980s, one in progress now, and one programmed for a few years hence confirm this intention. The trend is inevitable as vehicle numbers continue to increase, but begs the question whether historic road-associated structures will be preserved in the construction of a wider roadway, and whether any of the historic built landscape can survive in the quest for additional parking and tourist accommodations. The answer may be no, unless another trend--voluntary use of NPS shuttle buses which circumnavigate the loop--is expanded and mandated, leaving the roadway for the most part to bicyclists and pedestrians. The NPS is investigating this possibility, and though difficult to implement, it will give visitors the time and opportunity to admire Village Loop's admirable landscape.

ENDNOTES

1. W.R. Mattoon, Forest Examiner, "A Working Plan For Grand Canyon National Monument," 105-page report with illustrations, 23 June 1909, copy in Professional Services, GCNP, Exhibit 6.
2. H.D. Burrall, surveyor, "Working Plan Map, Grand Canyon, Tusayan National Forest," [1917], copy in Professional Services, GCNP.
3. USDA, USFS, A Plan for the Development of the Village of Grand Canyon, Ariz. (Washington: Government Printing Office, 1918), 8. This small volume was written by Frank A. Waugh, apparently under contract to the USFS.
4. James W. Woodward, Jr., Janus Associates, Inc., "Grand Canyon Village Historic District," National Register of Historic Places nomination, 19 May 1989, 8.8-9.
5. Woodward, 8.10-8.11; NPS Landscape Engineering Division, "Grand Canyon National Park General Plan for Community Development," sketch map, 24 June 1924, copy in Professional Services, GCNP.
6. W.R.F. Wallace, "Final Construction Report: Grand Canyon Village Road, Route 2 Portion of Section 'A'," 10 May 1930, GCSC.
7. Wallace, Final Construction Report: Grand Canyon Village Road."
8. USDI, Grand Canyon National Park, M.R. Tillotson, "Final Construction Report on Service Roads," 28 March 1931, GCSC.
9. C.H. Sweetser to Chief of the BPR, 13 September 1934; First Assistant Secretary to C.H. Daley, Vinson & Pringle, 29 September 1934; and Acting Chief of Bureau [BPR] to Arno Cammerer, NPS Director, 21 September 1934; all three letters in Misc Construction D30--Hermit Rim Road Part II--Sept 1934 - Dec 1935, GCNPL.
10. BPR narrative construction reports, 13 April, 25 May, 29 June, 27 July, 29 September 1935, Misc Construction D30--Hermit Rim Road Part II..., GCNPL.
11. Change orders and narrative reports within Misc Construction D30--Hermit Rim Road Part II..., GCNPL, identify this equipment and its movement during the project.
Information from this and the following paragraphs concerning the 1934-35 project comes from the weekly narrative reports of December 1934 through October 1935, Misc Construction D30--Hermit Rim Road Part II..., GCNPL; USDA, BPR, "Report of Survey and Proposed Construction of all of Route 8, Hermit Rest," Misc Construction D30--Hermit Rim Road Part I--Jan 1927-Sept 1934,

GCNPL; and USDI, NPS, "As Constructed Plans for Project NR-8, Grading and Subgrade Reinforcement, Route 8--Hermit Rest," 1934-37, copy in Professional Services, GCNP.

12. USDA, BPR, "Change Order No.1," 13 December 1934, Misc Construction D30--Hermit Rim Road Part II--Sept 1934-Dec 1935, GCNPL indicates that the entire wall at the east end of the railroad tracks from Station -1+00 through 1+60 was constructed during this project. Narrative reports indicate this work was done in May and June 1935. There was some form of wall in this area before the 1934-35 project, however.

13. USDI, GCNP, Tillotson, "Final Construction Report on Service Roads," 28 March 1931. Tillotson's report with attached photograph clearly identifies the triple culvert and masonry headwall. A photograph (Image #3963C) in GCSC suggests that the culvert and headwall may have been reconstructed ca. 1936, however, the photo's caption may well be incorrect.

14. USDI, NPS, "As Constructed Plans for Project NR-8, Grading and Subgrade Reinforcement, Route No. 8--Hermit Rest," 1934 [revised 1936-37], Professional Services, GCNP, Sheets 4,5, and 19.

15. USDA, BPR, "Comparison of Cost of Proposed Changes, Change Order No. 1," 13 December 1934, Misc Construction D30--Hermit Rim Road Part II--Sept 1934-Dec 1935, GCNPL.

16. Narrative report, 3 August 1935.

17. USDA, BPR, "Change Order No. 2" and "Comparison of Cost of Proposed Change, Change Order No. 2," 1 March 1935, Misc Construction D30--Hermit Rim Road Part II--Sept 1934-Dec 1935, GCNPL.

18. USDA, BPR, "Report of Survey and Proposed Construction on all of Route 8"; "Change Order No.2"; "Comparison of Cost of Proposed Change, Change Order No. 2."

19. "Map of the Village Area in Grand Canyon," 1935, copy in Professional Services, GCNPL. See also Annual Superintendents' Reports, 1923-35, GCNPL.

20. Annual Superintendent's Report, 1935-36; USDI, NPS, Office of the Chief Engineer, "Railroad Right of Way and Station Grounds," sketch map, 1936, NPGC-5080, copy in Professional Services (Railroad Depot office), GCNPL.

Reports through 1960 were reviewed for road alterations. In the author's interview with Joe Bice, Roads Supervisor, 28 July 1994, Mr. Bice stated that there were no major reconstructions to Village Loop during his 27 years with the road and trails crews.

21. Annual Superintendent's Reports, 1945-46, 1946-47, 1949-50, 1952-53.
22. Joe Bice interview.
23. "Completion Report: Motor Lodge By-Pass Road--South Rim Village," 1973, GRCA 61773, Box 3, GCSC.
24. Howard B. Stricklin to All residents of Grand Canyon, memorandum, 30 January 1969, Reference File--Roads, GCNPL.
25. Annual Superintendent's Report, 1936-37; USDA, BPR "Change Order No. 1"; photograph of culvert construction, GRCA Image #3963C, GCSC; Weekly Narrative Reports, May-June 1935.
26. USDA, BPR, "Report of Survey and Proposed Construction of all of Route 8."
27. USDA, BPR, "Report of Survey and Proposed Construction of all of Route 8"; USDI, NPS, "As Constructed Plans for Project NR-8."
28. USDI, NPS, "As Constructed Plans for Project BR-8."

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Numerous letters, memorandums, reports, and change orders
identified in the endnotes were taken from the following files at
Grand Canyon National Park Library and Grand Canyon National Park
Study Collections:

Reference File--Roads.

Misc Construction D30--Hermit Rim Road Part I--Jan 1927-Sep 1934.

Misc Construction D30--Hermit Rim Road Part II--Sep 1934-Dec 1935