G L O S S A R Y

SOURCE: EARTHQUAKE RESEARCH INSTITUTE

GLOSSARY of terms used in earthquake engineering. They are consistent with those proposed by the Earthquake Engineering Research Institute.

Accelerogram. The record from an accelerometer showing acceleration as a function of time. The peak acceleration is the largest value of acceleration on the accelerogram.

Acceptable Risk. A probability of occurrences of social or economic consequences due to earthquakes that is sufficiently low (for example in comparison to other natural or manmade risks) as to be judged by appropriate authorities to represent a realistic basis for determining design requirements for engineered structures, or for taking certain social or economic actions.

Active fault. A fault is active if, because of its present tectonic setting, it can undergo movement from time to time in the immediate geologic future. This active state exists independently of the geologists' ability to recognize it. Geologists have used a number of characteristics to identify active faults, such as historic seismicity or surface faulting, geologically recent displacement inferred from topography or stratigraphy, or physical connection with an active fault. However, not enough is known of the behavior of faults to assure identification of all active faults by such characteristics. Selection of the criteria used to identify active faults for a particular purpose must be influenced by the consequences of fault movement on the engineering structures involved.

Attenuation. A decrease in seismic signal strength with distance which depends not only on geometrical spreading, but also may be related to the

physical characteristics of the transmitting medium that cause absorption and scattering.

Attenuation law. A description of the average behavior of one or more characteristics of earthquake ground motion as a function of distance from the source of energy.

b-value. A parameter indicating the relative frequency of earthquakes of different sizes derived from historical seismicity data.

Capable fault. A fault along which future surface displacement is possible, especially during the lifetime of the engineering project under consideration.

Design earthquake. A specification of the ground motion at a site based on integrated studies of historic seismicity and structural geology used for the earthquake-resistant design of a structure.

Design spectra. Spectra used in earthquake-resistant design which correlate with design earthquake ground motion values. Design spectra typically are smooth curves that take into account features peculiar to a geographic region and a particular site.

Design time history. One of a family of time histories used in earthquake-resistant design which produces a response spectrum enveloping the smooth design spectrum, for a selected value of damping.

Duration. A qualitative or quantitative description of the length of time during which ground motion at a site exhibits certain characteristics such as being equal to or exceeding a specified level of acceleration such as 0.05g.

Earthquake hazards. The probability that natural events accompanying an earthquake such as ground shaking, ground failure, surface faulting, tectonic deformation, and inundation, which may cause damage and loss of life, will occur at a site during a specified exposure time. See earthquake risk.

Earthquake risk. The probability that social or economic consequences of earthquakes, expressed in dollars or casualties, will equal or exceed specified values at a site during a specified exposure time.

Earthquake waves. Elastic waves (P, S, Love, Rayleigh) propagating in the Earth, set in motion by faulting of a portion of the Earth.

Effective peak acceleration. The peak ground acceleration after the ground-motion record has been filtered to remove the very high frequencies that have little or no influence upon structural response.

Epicenter. The point on the Earth's surface vertically above the point where the first fault rupture and the first earthquake motion occur.

Exceedance probability. The probability (for example, 10 percent) over some period of time that an event will generate a level of ground shaking greater than some specified level.

Exposure time. The period of time (for example, 50 years) that a structure is exposed to the earthquake threat. The exposure time is sometimes related to the design lifetime of the structure and is used in seismic risk calculations.

Fault. A fracture or fracture zone in the Earth along which displacement of the two sides relative to one another has occurred parallel to the fracture. See Active and Capable faults.

Focal depth. The vertical distance between the hypocenter and the Earth's surface in an earthquake.

Ground motion. A general term including all aspects of motion; for example, particle acceleration, velocity, or displacement; stress and strain; duration; and spectral content generated by a nuclear explosion, an earthquake, or another energy source.

Intensity. A numerical index describing the effects of an earthquake on the Earth's surface, on man, and on structures built by him. The scale in common use in the United States today is the Modified Mercalli scale of 1931 with intensity values indicated by Roman numerals from I to XII. The narrative descriptions of each intensity value are summarized below.

I. Not felt--or, except rarely under especially favorable circumstances. Under certain conditions, at and outside the boundary of the area in which a great shock is felt: sometimes birds and

animals reported uneasy or disturbed; sometimes dizziness or nausea experienced; sometimes trees, structures, liquids, bodies of water, may sway--doors may swing, very slowly.

II. Felt indoors by few, especially on upper floors, or by sensitive, or nervous persons. Also, as in grade I, but often more noticeably: sometimes hanging objects may swing, especially when delicately suspended; sometimes trees, structures, liquids, bodies of water, may sway, doors may swing, very slowly; sometimes birds and animals reported uneasy or disturbed; sometimes dizziness or nausea experienced.

III. Felt indoors by several, motion usually rapid vibration. Sometimes not recognized to be an earthquake at first. Duration estimated in some cases. Vibration like that due to passing of light, or lightly loaded trucks, or heavy trucks some distance away. Hanging objects may swing slightly. Movements may be appreciable on upper levels of tall structures. Rocked standing motor cars slightly.

IV. Felt indoors by many, outdoors by few. Awakened few, especially light sleepers. Frightened no one, unless apprehensive from previous experience. Vibration like that due to passing of heavy or heavily loaded trucks. Sensation like heavy body of striking building or falling of heavy objects inside. Rattling of dishes, windows, doors; glassware and crockery clink or clash. Creaking of walls, frame,

especially in the upper range of this grade. Hanging objects swung, in numerous instances. Disturbed liquids in open vessels slightly. Rocked standing motor cars noticeably.

V. Felt indoors by practially all, outdoors by many or most; outdoors direction estimated. Awakened many or most. Frightened few--slight excitement, a few ran outdoors. Buildings trembled throughout. Broke dishes and glassware to some extent. Cracked windows--in some cases, but not generally. Overturned vases, small or unstable objects, in many instances, with occasional fall. Hanging objects, doors, swing generally or considerably. Knocked pictures against walls, or swung them out of place. Opened, or closed, doors and shutters abruptly. Pendulum clocks stopped, started or ran fast, or slow. Move small objects, furnishings, the latter to slight extent. Spilled liquids in small amounts from well-filled open containers. Trees and bushes shaken slightly.

VI. Felt by all, indoors and outdoors. Frightened many, excitement general, some alarm, many ran outdoors. Awakened all. Persons made to move unsteadily. Trees and bushes shaken slightly to moderately. Liquid set in strong motion. Small bells rang--church, chapel, school, etc. Damage slight in poorly built buildings. Fall of plaster in small amount. Cracked plaster somewhat, especially fine cracks chimneys in some instances. Broke dishes, glassware, in considerable quantity, also some windows. Fall of knickknacks, books, pictures. Overturned furniture in many instances. Move furnishings of moderately heavy kind.

VII. Frightened all--general alarm, all ran outdoors. Some, or many, found it difficult to stand. Noticed by persons driving motor cars. Trees and bushes shaken moderately to strongly. Waves on ponds, lakes, and running water. Water turbid from mud stirred up. Incaving to some extent of sand or gravel stream banks. Rang large church bells, etc. Suspended objects made to quiver. Damage negligible in buildings of good design and construction, slight to moderate in well-built ordinary buildings, considerable in poorly built or badly designed buildings, adobe houses, old walls (especially where laid up without mortar), spires, etc. Cracked chimneys to considerable extent, walls to some extent. Fall of plaster in considerable to large amount, also some stucco. Broke numerous windows and furniture to some extent. Shook down loosened brickwork and tiles. Broke weak chimneys at the roof-line (sometimes damaging roofs). Fall of cornices from towers and high buildings. Dislodged bricks and stones. Overturned heavy furniture, with damage from breaking. Damage considerable to concrete irrigation ditches.

VIII. Fright general--alarm approaches panic. Disturbed persons driving motor cars. Trees shaken strongly--branches and trunks broken off, especially palm trees. Ejected sand and mud in small amounts. Changes: temporary, permanent; in flow of springs and wells; dry wells renewed flow; in temperature of spring and well waters. Damage slight in structures (brick) built especially to withstand earthquakes. Considerable in ordinary substantial buildings, partial collapse, racked, tumbled down, wooden houses in some cases; threw

out panel walls in frame structures, broke off decayed piling. Fall of walls, cracked, broke, solid stone walls seriously. Wet ground to some extent, also ground on steep slopes. Twisting, fall, of chimneys, columns, monuments, also factory stacks, towers. Moved conspicuously, overturned, very heavy furniture.

IX. Panic general. Cracked ground conspicuously. Damage considerable in (masonry) buildings, some collapse in large part; or wholly shifted frame buildings off foundations, racked frames; serious to reservoirs; underground pipes sometimes broken.

X. Cracked ground, especially when loose and wet, up to widths of several inches; fissures up to a yard in width ran parallel to canal and stream banks. Landslides considerable from river banks and steep coasts. Shifted sand and mud horizontally on beaches and flat land. Changes level of water in wells. Threw water on banks of canals, lakes, rivers, etc. Damage serious to dams, dikes, embankments. Severe to well-built wooden structures and bridges, some destroyed. Developed dangerous cracks in excellent brick walls. Destroyed most masonry and frame structures, also their foundations. Bent railroad rails slightly. Tore apart, or crushed endwise, pipelines buried in earth. Open cracks and broad wavy folds in cement pavements and asphalt road surfaces.

XI. Disturbances in ground many and widespread, varying with ground material. Broad fissures, earth slumps, and land slips in soft, wet ground. Ejected water in large amounts charged with sand and mud.

Caused sea-waves ("tidal" waves) of significant magnitude. Damage severe to wood-frame structures, especially near shock centers. Great to dams, dikes, embankments often for long distances. Few, if any (masonry) structures, remained standing. Destroyed large well-built bridges by the wrecking of supporting piers or pillars. Affected yielding wooden bridges less. Bent railroad rails greatly, and thrust them endwise. Put pipelines buried in each completely out of service.

XII. Damage total--practically all works of construction damaged greatly or destroyed. Disturbances in ground great and varied, numerous shearing cracks. Landslides, falls of rock of significant character, slumping of river banks, etc., numerous and extensive. Wrenched loose, tore off, large rock masses. Fault slips in firm rock, with notable horizontal and vertical offset displacements. Water channels, surface and underground, disturbed and modified greatly. Dammed lakes, produced waterfalls, deflected rivers, etc. Waves seen on ground surfaces (actually seen, probably, in some cases). Distorted lines of sight and level. Threw objects upward into the air.

Liquefaction. Temporary transformation of unconsolidated materials into a fluid mass.

Magnitude. A quantity characteristic of the total energy released by an earthquake, as contrasted to intensity that describes its effects at a particular place. Professor C. F. Richter devised the logarithmic scale for

local magnitude (M_L) in 1935. Magnitude is expressed in terms of the motion that would be measured by a standard type of seismograph located 100 km from the epicenter of an earthquake. Several other magnitude scales in addition to M_L are in use; for example, body-wave magnitude (m_b) and surface-wave magnitude (M_s), which utilize body waves and surface waves, and local magnitude (M_L). The scale is open ended, but the largest known earthquake have had M_s magnitudes near 8.9.

Region. A geographical area, surrounding and including the construction site, which is sufficiently large to contain all the geologic features related to the evaluation of earthquake hazards at the site.

Response spectrum. The peak response of a series of simple harmonic oscillators having different natural periods when subjected mathematically to a particular earthquake ground motion. The response spectrum may be plotted as a curve on tripartite logarithmic graph paper showing the variations of the peak spectral acceleration, displacement, and velocity of the oscillators as a function of vibration period and damping.

Return period. For ground shaking, return period denotes the average period of time or recurrence interval between events causing ground shaking that exceeds a particular level at a site; the reciprocal of annual probability of exceedance. A return period of 475 years means that, on the average, a particular level of ground motion will be exceeded once in 475 years.

Risk. See earthquake risk.

Rock. Any solid rock either at the surface or underlying soil having a shear-wave velocity 2,500 ft/sec (765 m/s) at small (0.0001 percent) strains.

Seismic Microzoning. The division of a region into geographic areas having a similar relative response to a particular earthquake hazard (for example, ground shaking, surface fault rupture, etc.). Microzoning requires an integrated study of: 1) the frequency of earthquake occurrence in the region, 2) the source parameters and mechanics of faulting for historical and recent earthquakes affecting the region, 3) the filtering characteristics of the crust and mantle constituting the regional paths along which the seismic waves travel, and 4) the filtering characteristics of the near-surface column of rock and soil.

Seismic zone. A generally large area within which seismic design requirements for structures are uniform.

Seismotectonic province. A geographic area characterized by similarity of geological structure and earthquake characteristics. The tectonic processes causing earthquakes have been identified in a seismotectonic province.

Source. The source of energy release causing an earthquake. The source is characterized by one or more variables, for example, magnitude stress drop, seismic moment. Regions can be divided into areas having spatially homogeneous source characteristics.

Strong motion. Ground motion of sufficient amplitude to be of engineering interest in the evaluation of damage due to earthquakes or in earthquake-resistant design of structures.

APPENDIX VI

BRIDGE INVENTORY AND LOCATION MAP OF THE SAN JUAN METROPOLITAN AREA

FEDERAL AID SYSTEM

SOURCE: DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
PLANNING AREA - 1981

L E G E N D

StG	Steel, Stringer/Multi-Beam or Girder
CCu	Concrete Culvert
CCAD	Concrete Continuous Arch-Deck
CCTB	Concrete Continuous Tee-Beam
CS	Concrete Slab
CTB	Concrete Tee-Beam
StTT	Steel Truss-Through
CAD	Concrete Arch-Deck
CBB	Concrete Box-Beam or Girders-Multiple
CCG	Concrete Continuous Stringer/Multi-Beam or Girder
CCS	Concrete Continuous Slab
OG	Ohter Stringer Multi-Beam or Girder
StGFS	Steel Girder and Floorbeam System
StTD	Steel Truss-Deck
CCGFS	Concrete continuous, Girder and Floorbeam System
StCGFS	Steel Continuous Girder and Floorbeam System
CBBS	Concrete Box Beam or Girders Single
PCTB	Prestress Concrete Tee Beam
StCTT	Steel continuous Truss-Through
MAD	Mansonry Arch-Deck
PCG	Prestress Concrete Stringer/Multi-Beam or Gird
CO	Concrete-Other
CG	Concrete Stringer Multi-Beam or Girder
CCCu	Concrete Continuous Culvert
CGFS	Concrete Girder and Floorbeam System
CF	Concrete Frame
OOO	Other-Other
PCF	Prestress Concrete Frame
CCF	Concrete Continuous Frame
StF	Steel Frame
StCG	Steel continuous, stringer/multi-beam or Girde
CCVS	Concrete continuous Void Slab
StCu	Steel Culvert

BRIDGE INVENTORY/LOCATION MAP

MUNICIPALITY OF BAYAMON

FEDERAL AID SYSTEM

BRIDGE NO.	ROAD NO.	KM. NO.	STRUCT. TYPE	YEAR BUILT	FEATURE INTERSECTED	MAXIMUM SPAN LENGTH	STRUCT. LENGTH	SPANS	RDWY WIDTH
34	2	11.0	StG	1942	Hondo River	27.6	19.8	01	15.6
35	2	11.90	StG	1943	Sta Catalina Creek	10.4	11.2	01	15.8
36	2	15.90	CBB	1942	Hondo River	4.3	32.6	02	20.7
374	167	9.00	StTT	1908	La Plata River	41.1	83.2	02	5.9
376	167	13.90	StG	1920	Cancel Creek	7.7	7.7	01	6.0
551	831	2.90	StG	1944	Minillas River	10.9	12.1	01	6.4
557	855	1.2	CS	1976	Hondo River	9.9	11.60	01	8.10
594	167	20.40	CCS	1950	Cerro Gordo Creek	8.7	24.5	03	8.6
1093	2	930	PCG	1975	Bayamón River	27.4	143.0	05	16.80
1098	5	2.4	COu	1973	Channel	3.6	88.8	02	63.6
1107	174	4.50	PCG	1969	Minillas River	20.3	21.6	01	8.6
1124	890	24.10	StG	1968	Bayamón River	11.2	32.8	03	8.5
1131	29	1.40	PCG	1971	Bayamón River	16.3	87.8	05	14.9
1132	29	1.40	PCG	1971	Bayamón River	16.3	88.4	05	14.9
1171	5	2.50	PCG	1976	Bayamón River	24.6	156.8	06	16.10
1172	5	2.50	PCG	1971	Bayamón River	25.2	155.5	06	16.0
1304	Pedestrian		StF	1971	PR-2 Km. 11.3	38.5	40.0	01	1.8
1305	Pedestrian		StF	1971	PR-2 Km. 11.4	29.8	31.3	01	1.8
1430	21	00	PCG	1976	PR.5	20 2	87.4	05	28.5
1431	5	1.59	CCIB	1976	Central Juanita Ave.	21.6	56.1	03	15.51
1432	5	1.59	CCIB	1975	Central Juanita Ave.	21.7	56.40	03	15.52

BRIDGE INVENTORY/LOCATION MAP

MUNICIPALITY OF BAYAMON

FEDERAL AID SYSTEM

BRIDGE NO.	ROAD NO.	KM. NO.	STRUCT. TYPE	YEAR BUILT	FEATURE INTERSECTED	MAXIMUM SPAN LENGTH	STRUCT. LENGTH	SPANS	RDWY WIDTH
1627	Pedestrian		StTT	1978	PR-167	40.01	40.01	01	1.54
1642	167		PCG	1978	Hondo River	24.22	77.10	03	15.42
1707	Pedestrian			1980	PR-2 Km. 15.0			01	
2085	177	2.70	PCG		Bayamón River	20.08	140.31	07	12.78
2112	Betances St.		CS	1976	Hondo River	12.9	14.41		21.4
2116	Castiglione Ave.		CCCu	1955	Doña Ana Creek	2.8	28.1	02	18.1
2193	167		CBBS	1977	Sta. Catalina Creek	44.3	50.3	01	14.6

BRIDGE INVENTORY/LOCATION MAP

MUNICIPALITY OF CAROLINA

FEDERAL AID SYSTEM

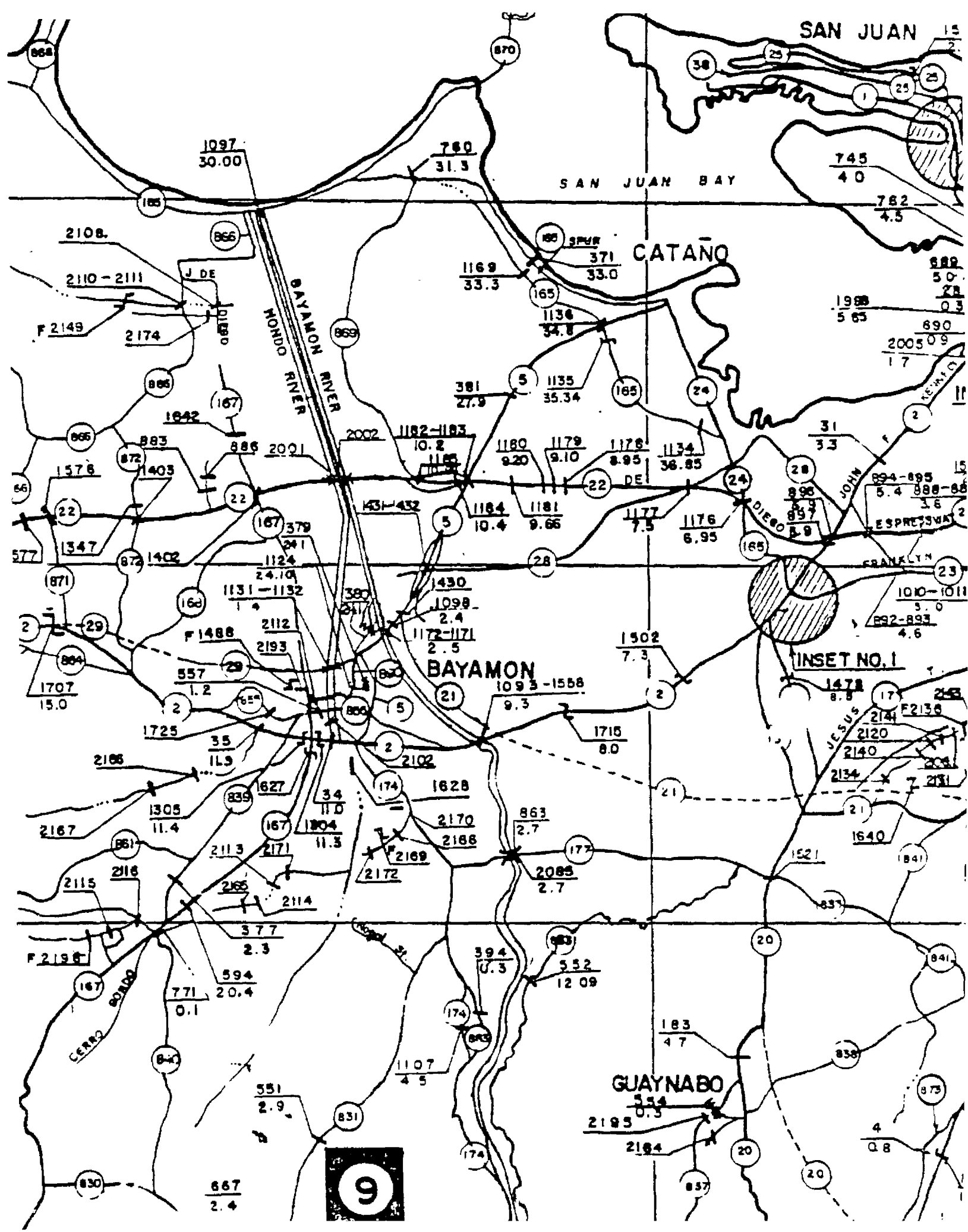
BRIDGE NO.	ROAD NO.	KM. NO.	STRUCT. TYPE	YEAR BUILT	FEATURE INTERSECTED	MAXIMUM SPAN LENGTH	STRUCT. LENGTH	SPANS	RDWY WIDTH
588	26	8.30	CCS	1950	Drainage Channel	11.7	46.6	04	9.8
658	3	6.42	CCu	1953	San Antón Creek	5.0	7.1	01	25.2
659	3	8.65	CCu	1953	Blasina Creek	6.0	10.3	02	20.5
673	185	12.78	CTB	1953	Cedro Creek	9.0	9.9	01	7.0
674	185	11.24	CCTB	1953	Canovanillas River	11.1	24.2	02	7.0
682	3	10.80	StG	1953	Río Gde. de Loíza	34.4	239.6	08	8.6
997	26	11.03	PCG	1965	Suárez Channel & PR190	30.6	81.9	03	14.6
998	26	11.00	PCG	1985	PR-190 Suárez Channel	30.7	82.2	03	14.6
999 Campo Rico Ave.			PCG	1985	PR-26	24.4	62.3	03	22.6
1000 Monserrate Ave.			PCG	1968	PR-26	27.4	68.2	03	25.0
1001	PR-26	13.70	PCG	1967	PR-3	25.8	51.6	03	12.2
1002	26	13.70	PCG	1967	PR-3	26.1	51.4	03	12.2
1003	26	13.80	CCTB	1967	PR-3 & PR-887	14.0	53.0	03	10.7
1004	26	13.80	CCS	1967	PR-3 Ramp	12.6	35.3	03	7.2
1060	Pedestrian		PCG	1973	PR-3 Km. 12.4	23.3	45.9	02	1.8
1200	183	1.10	StCu	1971	Cayaguax River	4.1	39.50	02	8.0
1540	Pedestrian		StTT	1976	PR-26 Km. 6.15	24.1	62.97	03	1.65
2071	26	00	PCG	1978	Ramp PR-26	25.70	27.70	01	14.16
2072	26	00	PCG	1978	Fragoso Street	22.46	22.46	01	35.90
2100 Monserrate Ave.			CCS	1968	Blasina Channel	4.9	20.8	04	11 1
2101 Ave. Campo Rico			CCu	1960	San Antón Channel	6.1	12.5	02	14.9

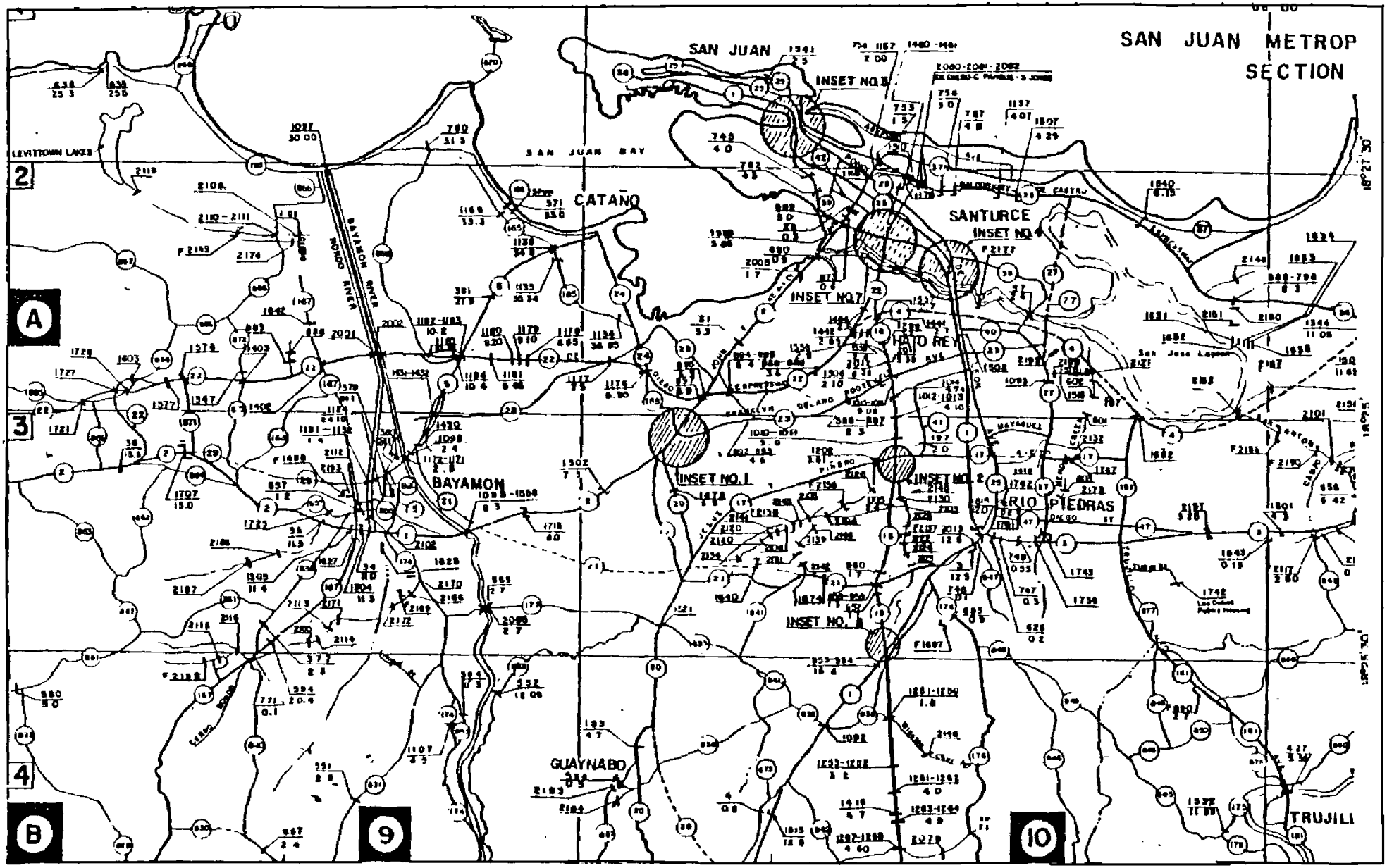
BRIDGE INVENTORY/LOCATION MAP

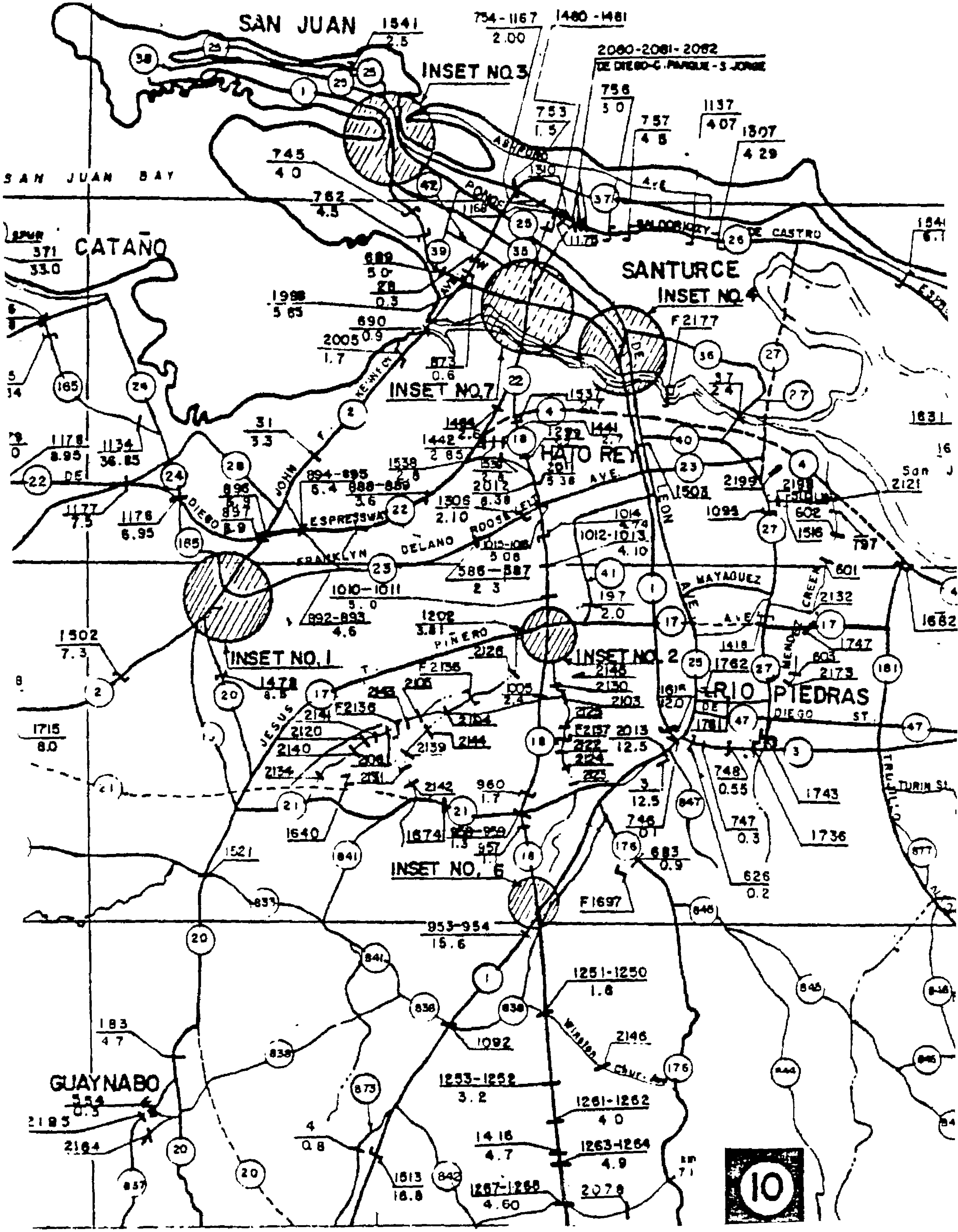
MUNICIPALITY OF CAROLINA

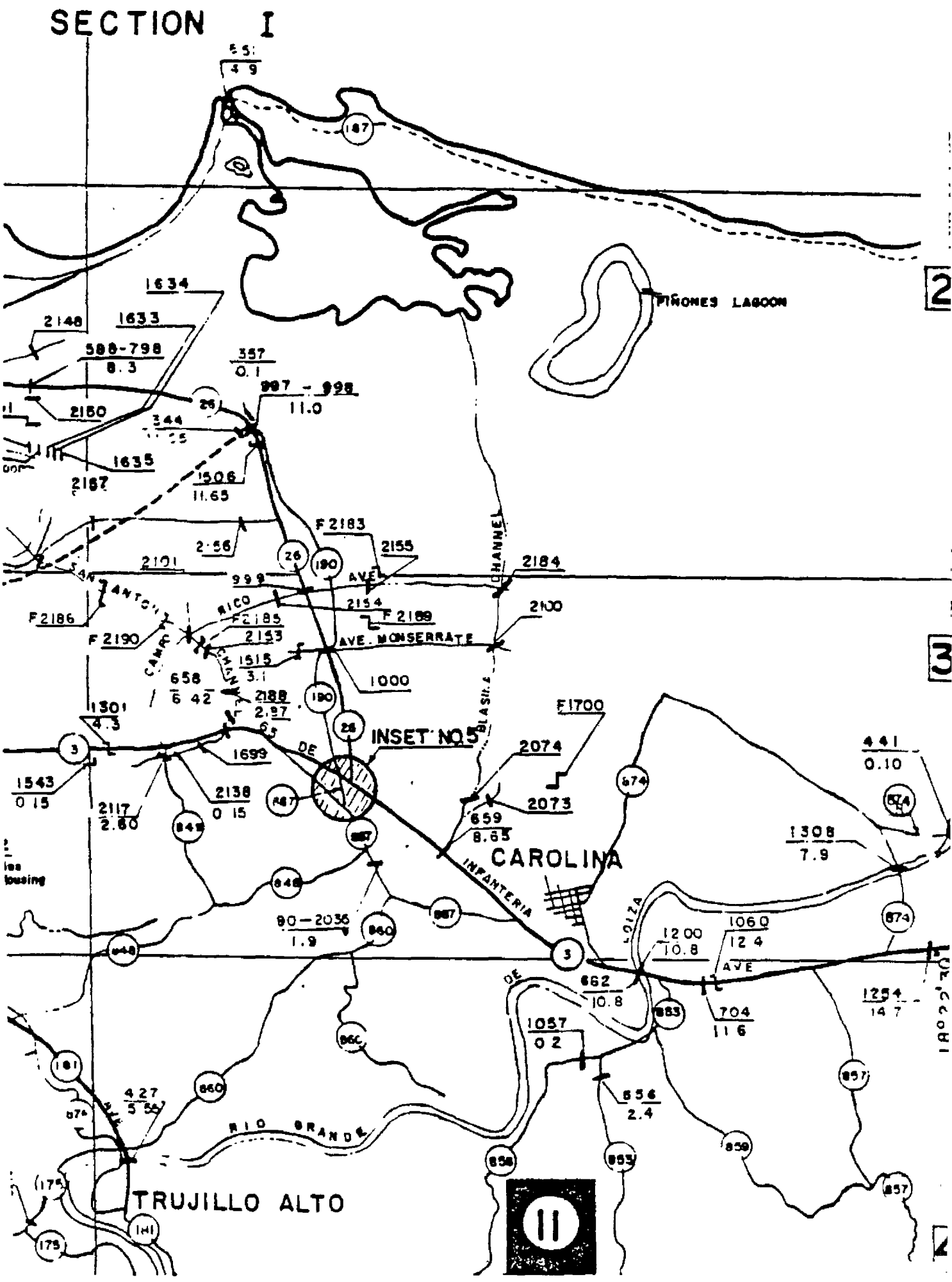
FEDERAL AID SYSTEM

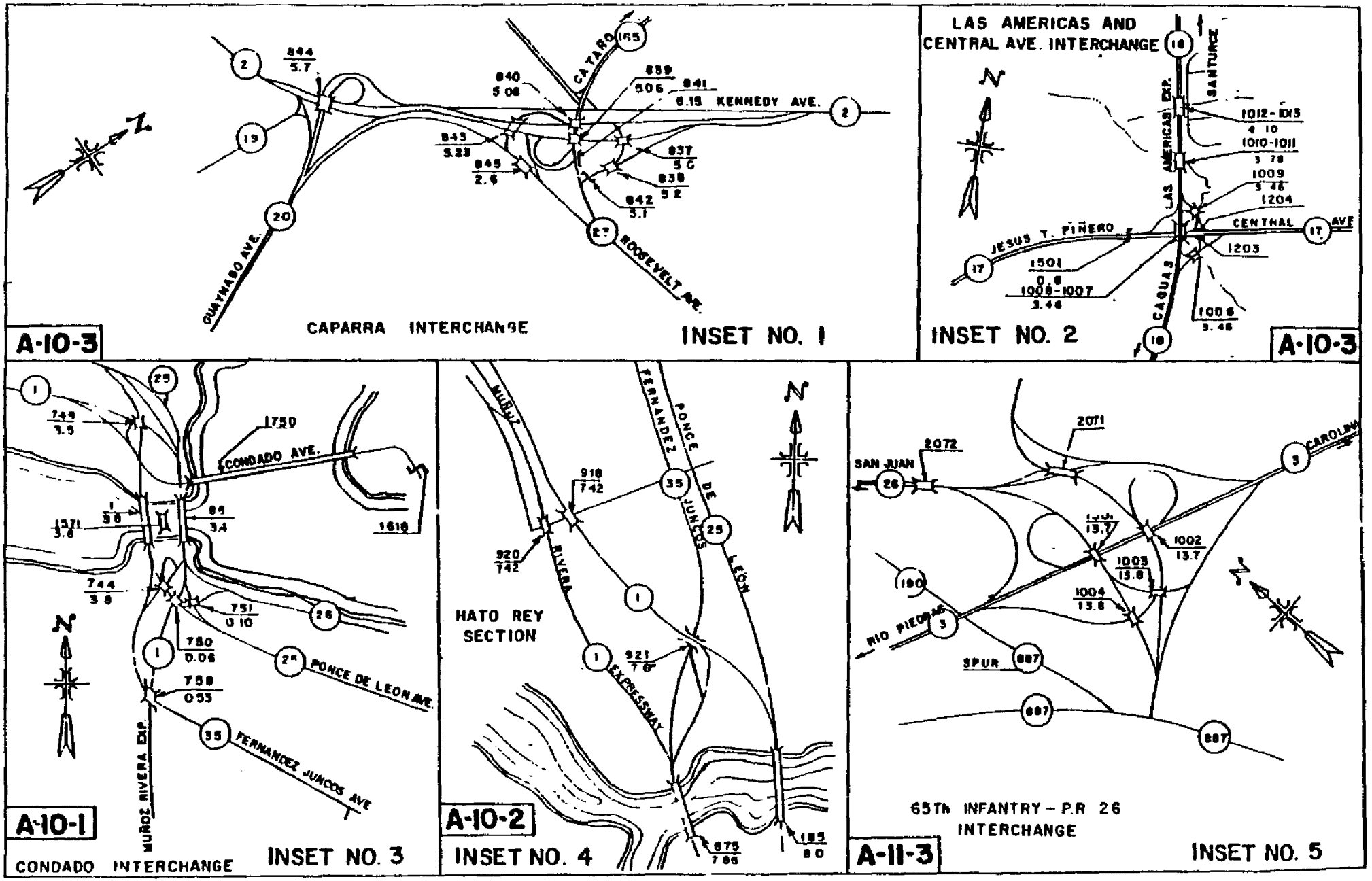
BRIDGE NO.	ROAD NO.	KM. NO.	STRUCT. TYPE	YEAR BUILT	FEATURE INTERSECTED	MAXIMUM SPAN LENGTH	STRUCT. LENGTH	SPANS	RDWY WIDTH
2152	Iturregui Ave		OCFS	1960	Channel	11.3	33.6	03	11.9
2154	Campo Rico Ave.		CCu	1960	Creek	3 0	6.8	02	13.7
2155	Campo Rico Ave.		CCu	1960	Creek	4.4	9.0	02	14.8
2156	Iturregui Avenue		CCu	1958	Creek	4.1	21.9	05	12.1
2157	Iturregui Avenue		CS	1960	Channel San José	3.9	14.0	03	14.6
2184	Campo Rico Ave.		CS	1968	Blasina Channel	6 0	25.4	04	14.7

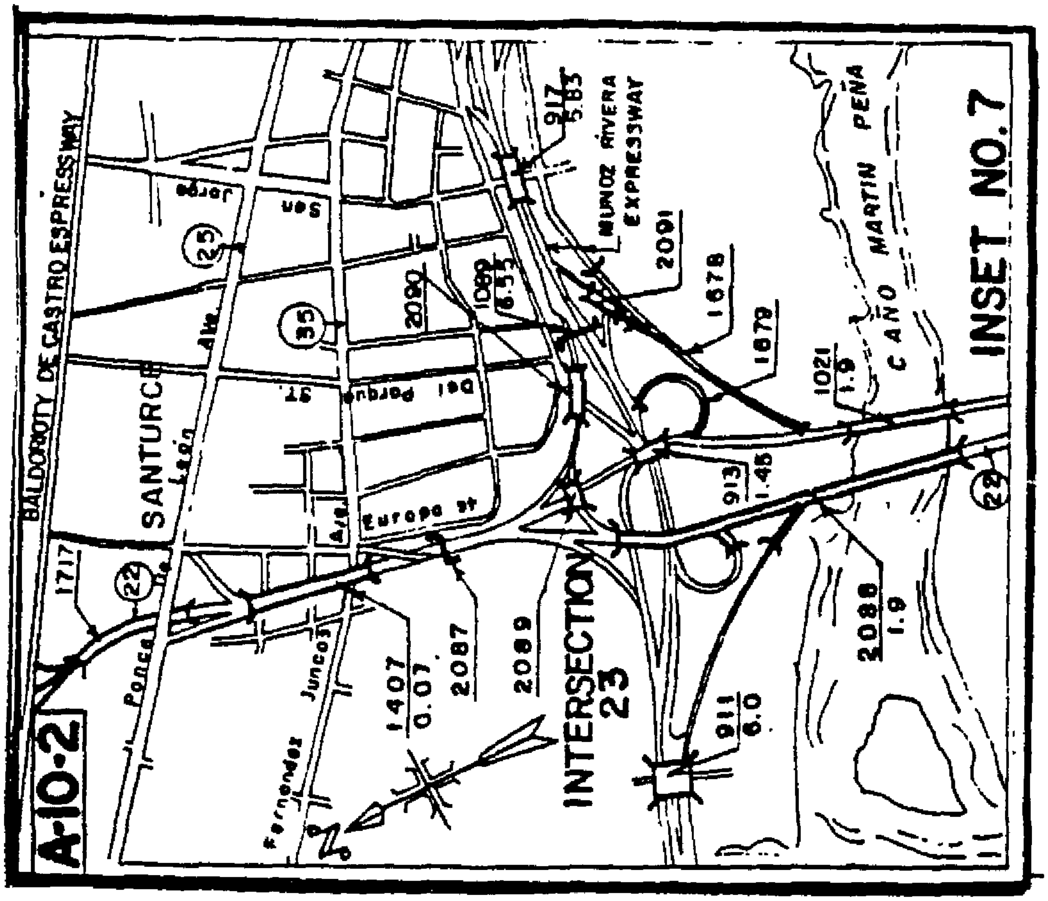

SAN JUAN
SAN JUAN BAY
CATAÑO
BAYAMON
GUAYNABO
INSET NO. 1
BAYAMON RIVER
HONDO RIVER
DIEGO
JESUS
JOHN
FRANKLYN
ESPRESSWAY
CERRO
9

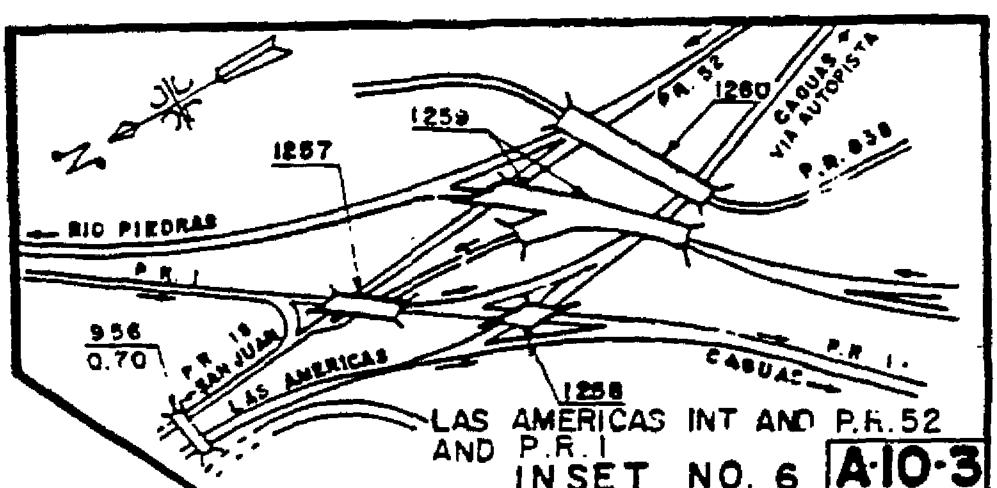

SAN JUAN METROP SECTION
SAN JUAN
INSET NO.8
SAN JUAN BAY
CATAÑO
SANTURCE
INSET NO.4
INSET NO.7
HATO REY
INSET NO.1
INSET NO.2
INSET NO.3
BAYAMON
RIO PIEDRAS
GUAYNABO
TRUJILLO
LEVITTOWN LAKES
BAYAMON RIVER
2
3
4
A
B
9
10


SAN JUAN
SAN JUAN BAY
CATAÑO
SANTURCE
HATO REY
RIO PIEDRAS
GUAYNABO
INSET NO.3
INSET NO.4
INSET NO.7
INSET NO.1
INSET NO. 2
INSET NO. 6
FRANKLYN DELANO ROOSEVELT AVE.
DE DIEGO ESPRESSWAY
JOHN F. KENNEDY
PIÑERO
JESUS T.
PONCE DE LEON AVE
MAYAGUEZ AVE
DE DIEGO ST.
TURIN ST.
2060-2081-2082
DE DIEGO-C. PARQUE-S JORGE
BALDORIOTY DE CASTRO
10


SECTION I
PIÑONES LAGOON
CHANNEL
INSET NO.5
CAROLINA
TRUJILLO ALTO
RIO GRANDE
AVE. MONSERRATE
INFANTERIA
AVE
DE
11
B
2
3


A-10-3
CAPARRA INTERCHANGE
INSET NO. 1
GUAYNABO AVE.
ROOSEVELT AVE.
KENNEDY AVE.
CATAÑO
LAS AMERICAS AND CENTRAL AVE. INTERCHANGE
LAS AMERICAS EXP.
SANTURCE
JESUS T. PIÑERO
CENTRAL AVE
CAGUAS
INSET NO. 2
A-10-3
A-10-1
CONDADO INTERCHANGE
CONDADO AVE.
MUÑOZ RIVERA EXP.
PONCE DE LEON AVE.
FERNANDEZ JUNCOS AVE
INSET NO. 3
HATO REY SECTION
MUÑOZ RIVERA
FERNANDEZ JUNCOS
PONCE DE LEON
EXPRESSWAY
A-10-2
INSET NO. 4
SAN JUAN
RIO PIEDRAS
SPUR
65th INFANTRY - P.R 26 INTERCHANGE
A-11-3
INSET NO. 5


A-10-2
INSET NO. 7
INTERSECTION 23
BALDORIOTY DE CASTRO ESPRESSWAY
SANTURCE
MUNOZ RIVERA EXPRESSWAY
CAÑO MARTIN PEÑA
Ponce De León Ave.
Fernandez Juncos Ave.
Europa st
Del Parque St.
San Jorge
22
25
35
1717
1407
0.07
2087
2089
2088
1.9
911
6.0
913
1.45
1021
1.9
1679
1678
2091
2090
917
5.85


RIO PIEDRAS
P.R. 1
P.R. 52
CAGUAS VIA AUTOPISTA
P.R. 838
1257
1258
1259
1260
956
0.70
P.R. 18 SAN JUAN
LAS AMERICAS
CAGUAS
LAS AMERICAS INT AND P.R. 52
AND P.R. 1
INSET NO. 6
A-10-3