CITY OF NEW YORK DEPARTMENT OF CITY PLANNING
INFORMATION TECHNOLOGY DIVISION
GEOGRAPHIC SYSTEMS

FILE DOCUMENTATION   May 8, 2015

FILE NAME: LION ROADBED POINTER LIST (RPL)

DESCRIPTION

The Roadbed Pointer List (RPL) is a file representing the relationships between generic and roadbed segments (or roadbed terminators – segments that represent the merging of divided roadbeds back into each other as a single roadbed or undivided street). Users can use the RPL to transfer data tied to Segment IDs of generic segments to Segment IDs of the corresponding roadbed segments (or vice versa). The file does not contain Generic IDs or Physical IDs.

Sample record:
```
0161267G0138409 R B   U   U 0099393 0012137 0099397 0099398
```

FIELD DESCRIPTIONS

SEGMENT TYPE

G	Generic segment
B	Segment is both Generic and Roadbed

ROADBED POSITION CODE (RPC)

The RPC is a flag to indicate on which side of the generic segment the roadbed lies. Side of segment is determined according to the rule that segment direction is toward increasing addresses:

R	Segment belongs to outermost roadbed on right side of the generic geometry
L	Segment belongs to outermost roadbed on left side of the generic geometry
I	Segment is internal (between the outermost roadbed and the generic). The 'I' segments will appear in order from "closest to the outermost roadbed" to the "closest to the generic segment." If the 'I' segments are on the right side, the records will appear after the 'R' (right outermost) record, and if on the left side will appear after the 'L' (left outermost) record.

Example: A Generic segment (segment ID 0173730) with two right roadbeds and two left roadbeds will appear in the file as four records:

```
0173730G0143949 R          right outermost roadbed
0173730G0143950 I          right inner roadbed
0173730G0137283 L          left outermost roadbed
0173730G0137258 I          left inner roadbed
```

NODE CORRESPONDENCE INDICATOR (NCI)

The NCI is a flag to indicate the relationship between the 'from' and 'to' nodes of the generic segment and the 'from' and 'to' nodes of its corresponding roadbeds.

> N   Neither node of the generic segment corresponds to a node of the roadbed or terminator segment

> F   The 'from' node of the generic segment corresponds to the 'from' node of the roadbed or terminator segment, but the 'to' nodes do not correspond

> T   The 'to' node of the generic segment corresponds to the 'to' node of the roadbed or terminator segment, but the 'from' nodes do not correspond

> B   Both the 'from' nodes and the 'to' nodes correspond

At present, we have segmented all generic segments and roadbeds so that their respective 'from' and 'to' nodes correspond directly; therefore, all NCI values are currently 'B.' We may in the future have to implement the use of NCI codes of 'N,' 'F,' or 'T' in addition to 'B.'

FROM AND TO NODE LEVEL CODE OF COINCIDENT ROADBED SEGMENT (if any)

Coincident segments are street segments that occur at the same location but at different heights (or levels), such as the upper and lower levels of the Queensboro Bridge. A generic segment of the Queensboro Bridge has, in reality, three right roadbeds and three left roadbeds. On the right side lies an outermost roadbed (accessed on the lower roadway of the bridge) as well us two inner coincident roadbeds (one of them accessed on the lower roadway of the bridge, with a coincident roadbed above it accessed by the upper roadway). On the left side of the generic repeats the same occurrence of roadbeds. In this example, coincident segments occur as inner roadbeds with an RPC of 'I;" however, coincident situations can occur in the outermost roadbed positions as well.

In order to distinguish coincident segments from each other within the RPL, we have included their 'from' node and 'to' node level codes. Level codes are used to specify the relative height of one street relative to the other street. In general, but not necessarily, a level code value of M for a node means that the segment end is at ground level. Values of A through L mean that the segment end is below ground level, with relative height increasing through the alphabet toward a ground level of M . Values of N through Z indicate that the segment end is above ground level, with relative height increasing through the alphabet away from a ground level of M. However, the level code values are only meaningful in relation to the other level codes at the same node. Topography is not considered. While the 'from' node level code and 'to' node level code serve as a relative z coordinate for nodes, differences in elevations in are not accounted for. Level codes are included in the RPL only for coincident segments.

Example: A Queensboro Bridge generic segment (segment ID 0132789) with three right roadbeds and two left roadbeds (where both sides have one outermost roadbed and coincident inner roadbeds at different levels) will appear in the file as six records:

```
0132789G0140198 R B
0132789G0140910 I B    Y    Y
0132789G0140909 I B    U    U
0132789G0140193 L B
0132789G0140911 I B    Y    Y
0132789G0140908 I B    U    U
```

NODE-ID'S OF FROM AND TO NODES

A node is an endpoint of a LION segment. Each node in LION has a unique node-ID of up to seven digits assigned to it. Once assigned, a node-ID is never reassigned; if a node is deleted from LION, its node-ID is permanently retired.

Every segment in LION has two nodes, one designated as the FROM node and the other as the TO node. For a street, these designations are determined by the direction of increasing address. For a non-street feature, the direction is determined arbitrarily, but is consistent along the feature; that is, the TO node of one segment is the FROM node of the next segment (unless the segments don't connect, i.e. the feature has a gap).

Any intersection of two or more segments must occur at a node. Nodes exist at intersections, at bending points, and at termination points (dead ends). (See discussion of Level Codes)

An RPL record's FROM and TO node-IDs are in the following order:

FROM NODE ID OF ROADBED SEGMENT
FROM NODE ID OF GENERIC SEGMENT
TO NODE ID OF ROADBED SEGMENT
TO NODE ID OF GENERIC SEGMENT

RECORD LAYOUT:

FIELD	SIZE	POSITIONS FROM	TO	COMMENTS
Generic Segment ID	7	1	7	RJZF[1]
Segment Type of Generic Segment	1	8	8	G or B
Roadbed Segment ID	7	9	15	RJZF
Filler	1	16	16	blank filled
Roadbed Position Code (RPC)	1	17	17	L, R or I
Filler	1	18	18	blank filled
Node Correspondence Indicator (NCI)	1	19	19	
Filler	3	20	22	blank filled
From Node Level Code of Coincident Roadbed Segment (if any)	1	23	23	
Filler	3	24	26	blank filled
To Node Level Code of Coincident Roadbed Segment (if any)	1	27	27	
Filler	1	28	28	blank filled
From Node ID of Roadbed Segment	7	29	35	RJZF
Filler	1	36	36	blank filled
From Node ID of Generic Segment	7	37	43	RJZF
Filler	1	44	44	blank filled
To Node ID of Roadbed Segment	7	45	51	RJZF
Filler	1	52	52	blank filled
To Node ID of Generic Segment	7	53	59	RJZF

[1] RJZF=Right Justified, Zero Filled.