

REPORT ON PARK ROW BEFORE SURVEYS FOR THE DYNAMIC ROUTE CHOICE PROJECT

Project Report 2 :

EPSRC funded project on the Experimental Investigation of the Dynamics of Driver Route Choice Behaviour.

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INTRODUCTION

The purpose of this document is to provide a record of the survey conducted on Park Row in Leeds during the early part of 2000 in connection with the EPSRC funded Dynamic Route Choice project. Put simply, the purpose of the project is to investigate driver's route choice behaviour, and in particular how they react to "sudden" and significant network disruption. This disruption may be, for example, the total removal of an important link with a network or the re-allocation of road space in favour of another mode of transport. The disruption may also be temporary to allow major highways maintenance to take place or permanent.

PARK ROW SCHEME

As part of its long term transport strategy, Leeds City Council has established a "City Centre Loop" which is a high capacity, one-way loop around the city centre designed to efficiently allow motorised traffic to travel around the city centre, with access to the city centre at strategic points. Within this loop the road space priority is to create a public transport box around which public transport and cyclists can easily navigate. Within the public transport box, the streets are largely pedestrianised.

Park Row forms the western vertical side to the public transport box. Figure 1 shows the before and after situation on Park Row. The change to the after situation took place on 28th May 2000. The closure of Park Row between Russell Street and City Square to private motorised traffic effectively removes Park Row as a City Centre through route.

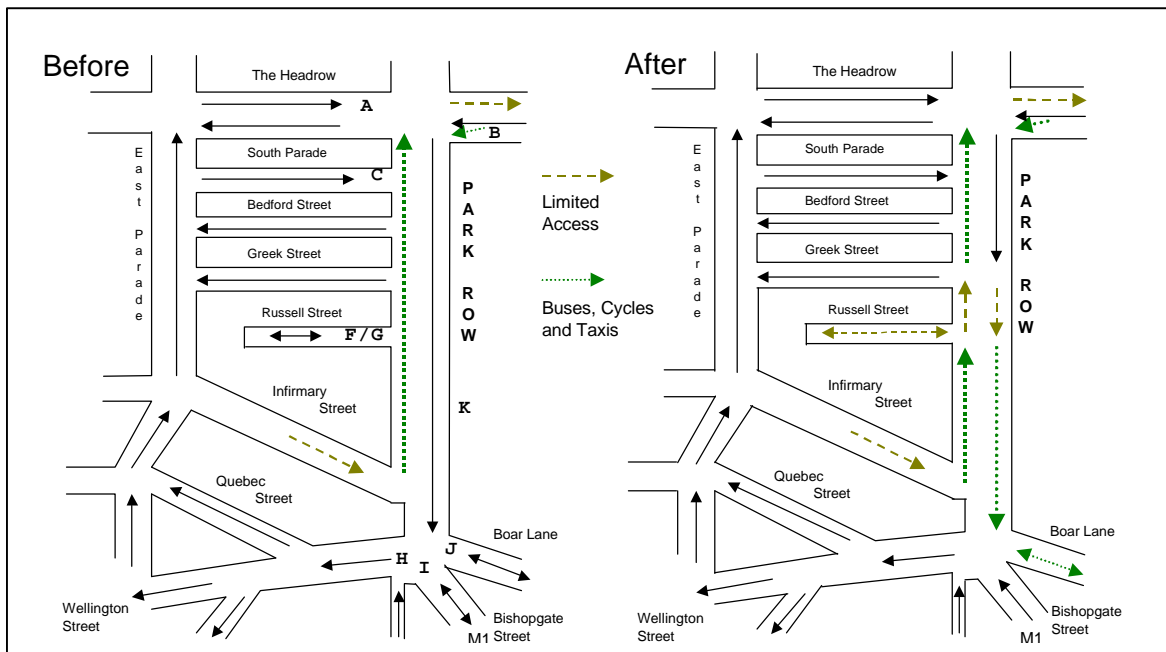


Figure 1 : Diagram of the study area before and after the changes

FIRST BEFORE SURVEY

The first before survey took place on the evening of 8th March 2000. The primary purpose of this survey was to ensure that the data collection methodology was suitable for the purpose. The survey method was to dictate vehicle registration numbers into a continuously running dictaphone. Individuals would be asked to record full registration numbers until they thought that this was no longer a practical proposition and could then resort to partial numbers of the

registration year plus the following three digits. The aim was to record all vehicles except buses, cyclists and taxis, since their route choice would not be directly affected by the proposed changes. Private hire vehicles were to be included. All the dictaphones contained a synchronised internal digital clocks and surveyors were asked to record (by speaking) the time every 5 minutes. The survey period was 16:30 to 17:30, in order to capture both pre-peak and peak conditions.

A secondary purpose was to establish the important routings which took place within Park Row. In total seven surveyors were placed at the strategic entry and exit points on Park Row.

Four surveyors were used at points A, B, C and G in figure 1 to capture the input flows. Point A is the main input flow and is a single lane right turn into Park Row from The Headrow. Point B is a turn which is banned for all vehicles except buses, taxis and cyclists but is still illegally used by many private motorised vehicles. Point C is a single lane right turn into Park Row. Russell street contains a commercial car park and Point G is used to register vehicles leaving this facility.

Four surveyors were used at points F, H, I and J to capture output flows (the surveyor at point F was the same person as at point G). Point F was to capture the vehicles entering the Russell Street car park. Point H is a right turn out of Park Row heading towards Quebec and Wellington Streets. Point I is the main output flow and is a link to the M621 and then the M1. Point J is a left turn and is used by vehicles which eventually wish to access the Railway Station.

It proved possible to take full registration numbers at all points except point A where the speed and volume of traffic made an accurate record of the full registration number difficult.

The unsurveyed locations were the right turns out of Park Row into Bedford and Greek Streets and a flow into City Square from Infirmary Street. Bedford and Greek Streets are largely used by circulating traffic looking for an on-street parking place of which there are many on the two streets. Since this situation will not change in the after situation such movements are of lesser importance for our purposes. Similarly the input flow from Infirmary street is mainly from a 20 space underground company car park which will still be permitted in the after situation. It could be argued that the same reasoning exists for the Russell Street car park whose access arrangements are unchanged in the after situation, but given the possibility of an additional survey location, this one was thought to be the most useful.

In summary, given the survey resources available all the likely re-routing flows will be captured by this survey.

SECOND BEFORE SURVEY

This survey was less extensive than the first before survey and took place on the 3rd May 2000. The primary purpose of this survey was to establish a re-occurrence rate for traffic using Park Row. A secondary purpose was to collect additional registration numbers which were unseen during the first before survey.

There was only one survey point, just below Russell Street, marked with a K in figure 1. At this point two surveyors were located on either side of the road. Their task was to record as many full registration numbers as possible. It will be obvious that this is a duplication of effort but the advantages are that the number of full registration numbers which are completely missed is minimised and that it is possible to verify one surveyor's records against the other's.

THIRD BEFORE SURVEY

The third before survey took place on the 11th May 2000 and was similar in location and methodology to the second before survey. The only real difference was that only the year letter and the three following digits were recorded. This was an attempt to assess whether the need to record the full registration number compromised the accuracy of the dictation exercise.

DATA

The full survey data is available in the appendix 3 to this paper where it is output as courier bold to aid the scanning in of data. Versions of the data on disk are available from the author and from the project web site (<http://gridlock.york.ac.uk/route/>). The data as reported here and at the web site has been altered to preserve the anonymity of the drivers using Park Row. The data is still suitable for matching (since the modification has been consistently applied) and *some* statistical analysis of the non-numeric part of the number. The project team allows anyone to use the data freely so long as they are acknowledged as the source for the data.

MATCHING

There exists many pieces of software which will perform the matching we require but for ease and rapidity of analysis a bespoke piece of software was written. This software had a designated primary file from which registration numbers were extracted in turn. A match was then sought in a list of up to 17 secondary files for this registration number. A typical example is to have point A data as the primary file and the secondary files from points F, H, I and J. This arrangement means that the primary files are independent of each other so that the matching against secondary files can be seen as being one “with replacement” i.e. a single instances of a secondary file registration number may match with a number of primary file registration numbers. In a more sophisticated matching package this possibility can be eliminated.

A full match occurred if the primary and secondary registrations numbers were identical, upto the minimum number of characters in either number. There is no time constraint on a full match and in the situation where there is more than one full match the one with the least journey time is selected. This latter point was only really an issue when matching with partial registration numbers.

In the final framework, a full match scored 10 for each individually correct character. Thus for a typical full registration number this score was 70 and for a typical partial number it was 40. To allow an element of mis-recording, sound alike letters were incorporated into the matching exercise. The three sets of sound alike letters were: {M,N}; {B, C, D, E, G, P, T, V}; {S,F}. A match against a sound alike letter “scored” only 5 points. So a match of B999ABC against C999ABC scored 65 whilst a match of B999ABC against C999BBC scored 60. A match was taken as a partial match if it scored 80% of its potential full score. For a full registration number this mean at most two sound alike matches or one completely incorrect match are allowed. For a partial number only one sound alike is permitted. In addition a partial match had to have a journey time of less than 10 minutes between the time seen in the primary file and the time seen in the secondary file.

Clearly the scheme above can be improved on. The independence operation should be eliminated and transposition errors should be taken account of. This we leave to others.

For a theoretical consideration of sample sizes and matches and mis-matches see appendix 1.

RESULTS

FIRST BEFORE SURVEY

The first set of results presented here are from an initial matching exercise on the first before survey data set. Here it should be possible to match most of the traffic seen at one of the input survey points (A, B, C and G) with one of the output survey points (F, H, I, J). One exception is that traffic seen leaving Russell Street (point G) should not be seen subsequently at survey point F. These types of input/output matches are termed forward matches. An alternative view is that vehicles seen leaving Park Row should at a previous time period of been seen entering Park Row. These matches are termed backwards matches.

The following table shows the forwards matches with the count followed by the mean journey time measured in minutes (in brackets).

	F	H	I	J	None
A	15 (1.4)	33 (2.5)	220 (1.9)	64 (2.3)	93
B	1 (1.0)	4 (3.0)	11 (1.9)	6 (1.5)	7
C	36 (1.4)	41 (3.2)	134 (2.0)	93 (2.6)	91
G		18 (1.6)	9 (1.0)	2 (1.5)	2

Table 1 : Forward matched of inputs to outputs

Thus for example, of the vehicles seen at survey point A, 33 were later seen to make the right turn out of Park Row. The number of vehicles seen at the inputs but not at any outputs is high at 93+7+91+2=193, 24% of the total input traffic. The next table shows the backwards matches in a similar format to table 1.

	A	B	C	G	None
F	13 (1.2)	1 (1.0)	32 (1.3)		6
H	33 (8.0)	3 (1.0)	40 (2.4)	12 (1.8)	40
I	221 (1.6)	10 (1.6)	132 (2.1)	6 (1.0)	71
J	59 (1.8)	5 (1.4)	86 (2.0)	2 (1.5)	23

Table 2 : Backwards matched of outputs to inputs

When comparing tables 1 and 2 a reasonable question is to ask why one is not just simply the transpose of the other, i.e. a match of A against H should be the same as a match of H against A? Why this is not necessarily the case can be explained with reference to an example. Take the matches of B to I (11) with those of I to B (10). Doing a forward match at point B with vehicle K996LYR gives a match with K996 LYR at point I. Doing a backwards match at point I with K996 LYR gives a match with either K996 at point A **or** K996 LYR at point B, and since the journey time from point A is less than from point B, the match is with A and not B (as was the case with the forwards match). Clearly, the “rogue” vehicle K996 at point A has prevented the true match from being recorded.

Some consideration is required as to why the number of none matches is so high. The first explanation is errors in the data. These errors can be from an incorrect dictation and/or and incorrect transcription depending on whether there was an intermediate paper stage before the data was typed into the computer. The second explanation is end effects where vehicles recorded at an input at the end of the survey hour would not have travelled to an output location before the end of the survey. Inspection of the data suggests that this amounts to only 2% (5 to 8 vehicles) of the total flow, about 5% of the unmatched flows. A third explanation is that vehicles leaked out of the system via Bedford and Greek Streets in the case of table 1. Subsequent counts showed that in the hour 16:30 to 17:30, there were 28 vehicles turning into Bedford Street and 63 turning into Greek Street. The total number of unmatched entry vehicles was 193, which reduces to 102 if the reasonable assumption is made that all the Bedford and Greek Street vehicles are unmatched vehicles. This still leaves a substantial number of input vehicles for which the only real explanation is that they were incorrectly recorded at either the inputs or the outputs.

For table 2 there will be another “end effect” with vehicles recorded at the start of the survey at an output location having started their journey at a input before the survey commenced. The magnitude is similar to the input effect mentioned above. There may also have been a seepage into the system mainly via Infirmary Street. The capacity of the under ground car park on Infirmary Street is approximately 20 vehicles and a count from video data showed a flow of 90 vehicles during the hour 16:52 to 17:52 on 23rd May 2000 from Infirmary Street. This leaves approximately 50 vehicles unmatched at the outputs.

A set of classified counts are available from Leeds City Council at various locations which correspond to the locations used in this survey. The right turn count from point C was recorded as 386 vehicles in the hour 16:30 to 17:30 on 24th March 1998 whilst the observed flow was 395 on the first before survey day. The “straight-on” count at the top of Park Row was recorded as 383, which compares with the slightly lower before survey flow of 361 (survey points A and B). Flows in and out of Russell Street (survey points F and G respectively) were also collected on 24th March, and these surveyed flows were 16 and 16 but much higher at 46 and 29 during the first before survey. A further count location is available at a point corresponding to survey point K but since no count was conducted at this point for the first before survey, no direct equivalent count is available. A close approximation can be made by summing the out flows at locations H, I and J but it must be borne in mind that these counts include a flow from Infirmary Street which would not be included in the count at point K. The surveyed flow was 767 vehicles whilst the sum of H, I and J is 743.

SECOND BEFORE SURVEY

For this survey it was found that the total observed flow was 678 vehicles in the hour. Of the 678, 107 (16%) were inconsistent between the two observers. A review of the tapes enabled 75 of these inconsistencies to be resolved, leaving a hard core of 32 (5%) registration numbers which could not be reconciled.

Matches of this second data set (which still contained the 32 hard cases) against the first data set produces the following results:

	A	B	C	G	H	I	J	None
K	61	2	21	1				593
K					9	61	5	603

Table 3 : Re-occurrence rates between the first and second before surveys

The re-occurrence rates are relatively low, been 14% for input vehicles and 11% for output vehicles. One explanation is that the errors in the first before data set have prevented some real matches from taking place. The errors in the second data set which may contribute to this will have been reduced due to the duplicate nature of the second survey. A further explanation may be the almost 2 month time span between the two surveys. If the second before survey matching is restricted to the year and three digits part of the registration number then the re-occurrence rate increases from 14% to 23% for input matches and 11% to 21% for output matches. Statistical theory (see appendix 1) suggests that for these volumes of traffic, there should be about 27 spurious matches in the data set. By restricting the matching length for the second before survey an extra 63 matches have been produced, nearly twice that expected. The figure of 27 is a lower estimate since it relies on the uniform randomness of the year letter, which is not a reasonable assumption for this data set, but still the large number of potentially spurious matches is a cause for concern.

As mentioned in the previous section a traffic count from Leeds City Council is available which corresponds to location K. The surveyed flow on 24th March 1998 was 767 and the count during the second before survey was 678, a significant decrease. It may be worth noting that at the time of the second survey, the closure of Park Row had begun to receive some publicity and street signs announcing the change had been erected. Whether this had caused some drivers to select or evaluate alternative routes “early” is a point of conjecture.

THIRD BEFORE SURVEY

The total observed flow on the third before survey was 655 vehicles in the survey hour which compares well with the second before survey total of 678. A comparison of the two observers showed a raw matching volume of 593 numbers, leaving 62 numbers which contained inconsistencies between the two observers (10% error rate). Of these 62, 34 could be resolved leaving a hard core of 28 cases (4%). These figures compare well with those found in the second before survey.

Matches of this third data set (which still contained the 28 hard cases) against the first data set produces the following results:

	A	B	C	G	H	I	J	None
K	64	4	70	1				526
K					27	92	16	530

Table 4 : Re-occurrence rates between the first and third before surveys

Here the re-occurrence rates at 21% and 20% are much higher than those initially seen in the second before survey. It should be borne in mind that for the second before survey, full seven character matches were required rather than the four character matches required here. Later

re-occurrence rates for the second before survey which use only the year character and the three digits are inline with those reported in this section. As a further piece of analysis, a match of the second and third before surveys is possible. When the second survey file is the primary file, there are 163 matches of 678 vehicles, a re-occurrence rate of 24% . When the third survey file is used as the primary file, there are 158 matches of 665 vehicles, a higher re-occurrence rate of 31% between these two surveys. Note that the second and third after surveys took place only eight days apart, which suggests that the individual vehicles using Park Row varies considerably.

ACKNOWLEDGEMENTS

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Appendix 1

Much of the material in this appendix is taken from Schaefer (1988). This paper provides both practical and statistical advice in the undertaking of number plate matching exercises. This section will present results based on the statistical content of the paper.

Combinations

Assume all number plates of form X 999 XXX

Assume distribution of individual components is uniform random

Total number of combinations (Years A to W):

$$20 \times 10 \times 10 \times 10 \times 23 \times 23 \times 23 = 243.34 \text{ million}$$

Record year and three digits only: 20,000 combinations

Statistics of the survey

$$\text{Minimum sample size : } N = \frac{pqK^2}{E^2}$$

p : prop'n of correctly recorded inbound matched at outbound

q : prop'n of correctly recorded inbound not matched at outbound (1-p)

K : level of confidence (2 tailed) : 95% = 1.95, 99% = 2.56

E : Permitted error in the proportion estimate of observance

Figure A1 shows the shape of this function as the permitted error ranges from 5% to 25% and the proportion of correctly recorded inbound vehicles which are matched at the outbound ranges from 10% to 90% at the 95% level of confidence. Figure A2 shows the same graph but with a higher, 99%, degree of required confidence.

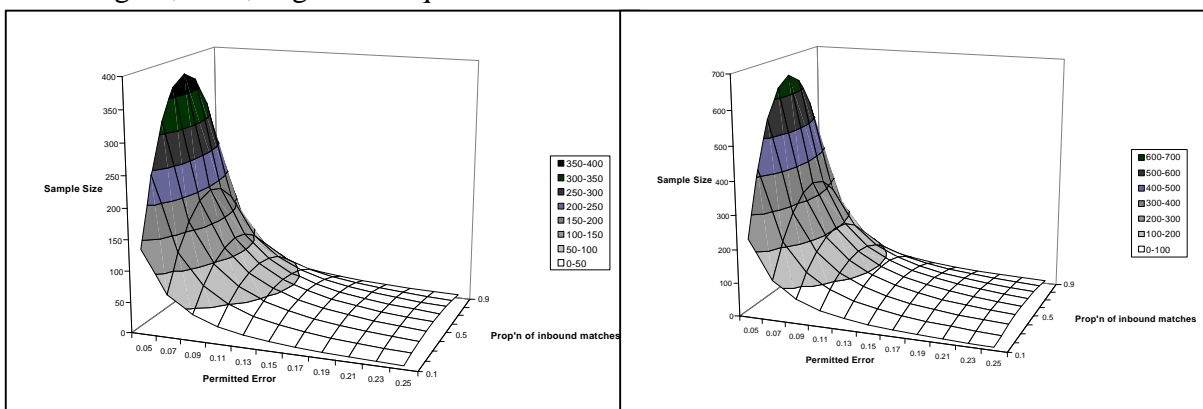


Figure A1 : Sample size for 95% confidence

Figure A2 : Sample size for 99% confidence

$$\text{Account for field errors : } m = Np + K\sqrt{Npq}$$

N : Minimum sample size (see above)

p : probability of incorrectly recording a plate

q : probability of correctly recording a plate (1-p)

K : level of confidence (1 tailed) : 95% = 1.65, 99% = 2.33

The shape of this function as the sample size ranges from 50 to 700 and the field error ranges from 2% to 18% at the 95% level of confidence is shown in figure A3. The shape and extent of the graph for the higher 99% level of confidence is similar to that for 95% with the peak at a 700 sample and an 18% field error increasing from 143 to 150.

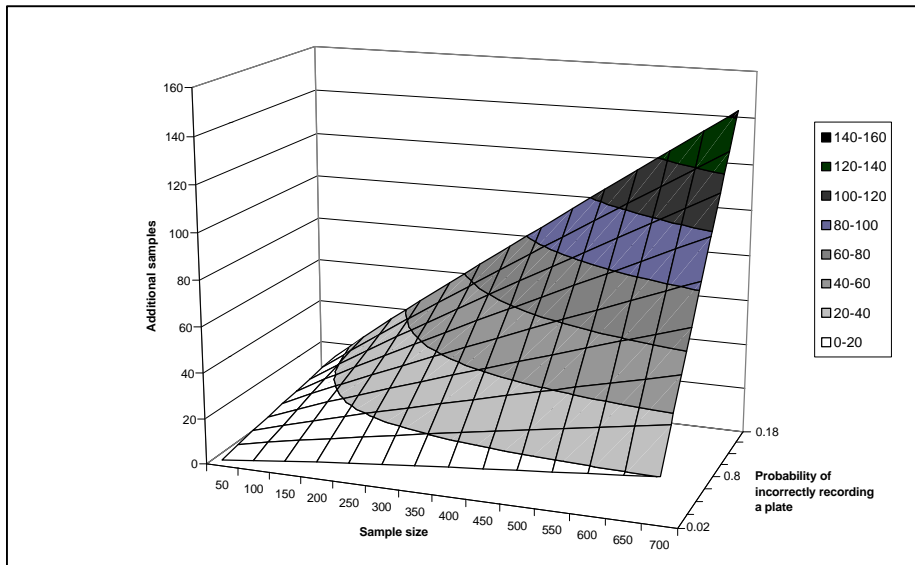


Figure A3 : Additional samples required to account for field errors

Therefore: **Required Sample** : $N + m$

Max number of spurious matches : $R = N_o (1 - e^{(-p N_d)})$

N_o, N_d : Vehicles observed at origin and destination;

p : probability of different cars with same number.

Figure A4 show the expected number of spurious matches for a range of inbound and outbound flows when the first year letter and the three digits are recorded ($p=20,000$). Figure A5 shows the same graph when only the three digits are recorded ($p=1,000$).

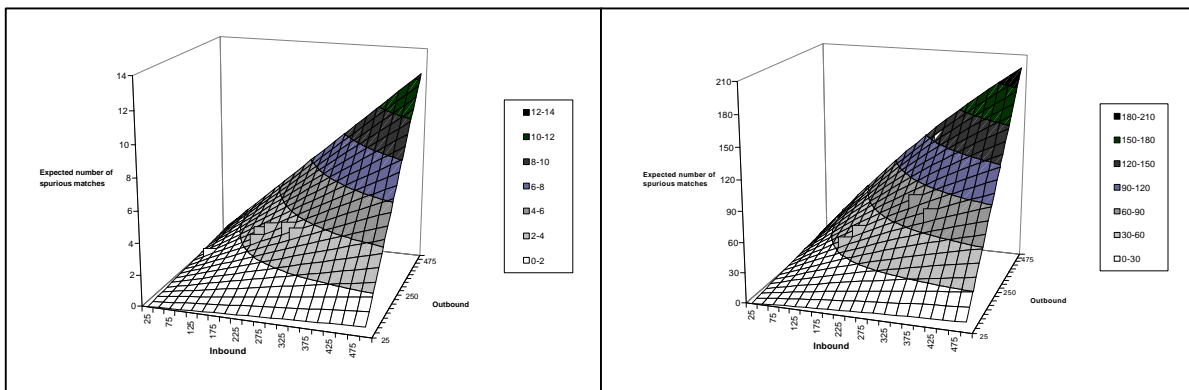


Figure A4 Expected number of spurious matches on X999

Figure A5 Expected number of spurious matches on 999

Figures A4 and A5 clearly demonstrate that the expected number of spurious matches increases dramatically if the year letter is not recorded.

All the above results rely on the assumption that the individual components within the registration number are uniformly randomly distributed. This is clearly not the case for the year and some of the three letter combinations found on United Kingdom number plates. In this light the above statistics can only be regarded as optimistic or lower-bound estimates.

Reference

Scheafer, MC (1988). License Plate Matching Surveys: Practical Issues and Statistical Considerations. *ITE Journal*, July 1988, pp37-42.

Appendix 2

This section contains still images from a CCTV camera operated by Leeds City Council which shows the operation of Park Row from roughly survey location I.





Appendix 3

Location A

		L443	5	M167	12
		H751	5	F016	12
		R351	5	H796	12
		L926	5	R598	12
G143	0	J190	5	J543	12
S756	0	N617	5	B964	12
T736	0	A990	5	D110	13
M213	0	M120	5	N016	13
S807	0	P409	5	P913	13
N542	0	M428	6	T305	13
B342	0	S379	6	N200	13
B680	0	V276	6	K159	13
H155	0	N380	6	V140	13
S835	1	M357	6	H850	13
A990	1	G342	6	M950	14
R694	1	R656	7	N273	14
S582	1	L809	7	H562	14
N116	1	T496	7	D106	14
G093	1	V324	7	B794	14
V130	1	N760	7	S831	15
T778	1	V278	7	N623	15
L584	2	M756	8	L411	15
K946	2	L096	8	P814	15
335I	2	H812	8	M181	15
G376	2	N829	8	F087	15
M878	2	K156	8	M281	16
J108	2	V065	9	N015	16
T945	3	R345	9	R440	16
N484	3	T988	9	R887	16
R414	3	N417	9	R775	16
N737	3	M426	9	W283	16
P851	3	K305	10	T398	16
T562	3	N209	10	M507	17
N559	3	M120	10	T498	17
R122	3	P106	10	P365	17
H986	4	R505	10	P686	17
N076	4	K240	10	K73?	17
M097	4	M251	10	H853	17
S010	4	H084	10	M525	17
V107	4	V567	11	V304	17
R128	4	J964	11	L452	17
P232	4	S697	11	P083	18
N497	4	L637	11	L752	18
N442	4	P165	11	S172	18
L465	4	J209	11	E321	18
L125	4	P637	11	S815	18
S294	4	M605	11	G294	18
N483	5	H166	12	F114	18

P929	18	J292	25	S171	32
G622	19	A987	25	M263	32
612I	19	K532	25	H866	32
G620	19	L739	26	B997	32
G760	19	D514	26	L452	32
V295	19	G029	26	P243	33
HUWB183	19	M671	26	F796	33
F336	19	J626	26	R148	33
S924	19	H784	27	N274	33
M076	20	F625	27	N706	33
V550	20	M941	27	G???	33
V481	20	A970	27	T320	33
M623	20	N275	27	M860	33
S286	20	M542	27	C804	34
F963	20	R955	27	V467	34
M572	20	L515	27	J227	34
E746	21	S581	27	N495	34
N471	21	P925	28	V084	34
V490	21	E262	28	N673	34
S438	21	V060	28	H392	34
R521	21	R172	28	P218	34
P154	21	R210	28	F319	34
V392	21	L319	28	R549	35
F895	22	N804	28	T020	35
N033	22	T619	28	R670	35
P354	22	K468	29	S220	35
S553	22	N459	29	G524	35
C451	22	M051	29	L336	36
K186	22	V615	29	B909	36
P274	22	V064	29	M816	36
K156	23	T286	29	T728	36
R015	23	R661	29	S145	36
V110	23	T106	29	E307	36
S891	23	J086	30	R580	37
V479	23	S710	30	R405	37
R716	23	N483	30	L381	37
N428	23	M008	30	J800	37
R019	23	L245	30	RJI1125	37
S084	24	N312	31	N132	37
T292	24	R565	31	H171	38
R103	24	M332	31	L161	38
F750	24	M316	31	P191	38
M537	24	K743	31	M583	38
V158	24	K967	31	G944	38
N671	25	M729	31	D598	39
L549	25	R314	31	L759	39
P821	25	A992	32	N501	39
P307	25	S362	32	R279	39

K318	40	SFL8	46	K602	53
K996	40	G383	47	N915	53
A997	40	N447	47	P241	53
S925	40	P465	47	H525	53
T708	40	D746	47	M625	53
M180	41	N893	47	S896	54
G299	41	V396	47	L301	54
K636	41	E858	47	E173	54
S300	41	H381	48	E280	54
H823	41	L826	48	V138	54
L293	41	L619	48	M704	54
N513	41	M459	48	R750	54
L210	42	P200	48	R527	54
J060	42	R407	48	T292	54
R875	42	E820	48	A980	54
A994	42	M160	49	IAZ1847	54
P158	42	J923	49	K617	54
P578	42	K688	49	M906	55
P014	42	L020	49	R638	55
N784	42	M121	49	M335	55
M003	43	M482	49	K803	55
L958	43	S318	50	R945	55
T840	43	P566	50	E165	55
V585	43	S128	50	E745	55
S379	43	G814	50	K484	55
F645	43	S751	50	H997	55
R538	44	R952	51	T056	56
S334	44	S528	51	H129	56
J555	44	N737	51	N914	56
T200	44	H982	51	V108	56
R881	44	L962	51	P643	56
R175	44	R378	51	L964	57
T065	44	M166	51	V723	57
M558	45	L637	51	R687	57
S378	45	M017	51	S498	57
V500	45	R778	52	R321	57
V613	45	S392	52	R029	58
S440	45	M995	52	N885	58
P328	45	P587	52	M574	58
K367	45	K097	52	S411	58
S707	45	K643	52	S735	59
H280	45	P526	52	R391	59
P882	46	R917	52	R548	59
G846	46	S585	52	S453	59
M623	46	A357	53	N689	59
R503	46	F722	53		
E671	46	T703	53	Location B	
E668	46	S786	53	E855YWB	2

T926UCU	3	R786YHJ	2	G425XJS	9
B048PRW	11	H121LBW	2	R244FCP	9
R224ECX	13	H945LWU	2	L035JMJ	10
H377VUB	14	B457YVW	2	A981OCR	10
C791NME	14	F302PLH	2	R738JPK	10
R720BFC	22	M632BOU	2	T670VAX	10
N031XOX	24	R210FWK	3	J537BFS	10
R543GOJ	25	K743GWW	3	L228SDU	10
R368SVA	25	N489SFM	3	CDZ8686	11
K343VEH	26	V593KWU	3	P592SWT	11
S151BUA	26	B089SAT	3	R163CDT	11
T647UUM	26	L542TGK	3	V329KCP	11
X771FWY	27	T847LOX	3	P571MWB	11
G306LWY	29	H573SJX	3	T869CFR	11
V283FLS	29	K626XJX	3	B703VHD	11
N344KWR	29	R462BEC	3	D509HFB	12
G523MVH	31	L496PUB	3	L289TCA	12
N623YDM	31	M937RHD	4	L433PAL	12
K103GUA	33	K079GUM	4	R759CHL	12
N887KCD	33	N711FYG	4	P091FOB	12
E588FTN	33	P773JAR	4	H015TCP	12
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V395EAY	36	G733NJX	4	K990LSY	13
E373EWG	44	N829TCG	4	R267OUG	13
W205HVC	44	HIL3358	4	J754FJX	13
F529TYE	53	G376PWU	5	J880DJV	13
N981YNE	53	S093MRA	5	P580KDC	13
P755VGG	57	P751TMA	5	B659XSP	13
		JAZ2082	5	T520MLK	14
Location C		H617CND	5	T028JVW	14
P851SUB	0	P180MWJ	5	R814ANO	14
W588WCP	0	R313SBU	6	S467UKW	14
LNU645W	0	R168HRP	6	V901DBF	14
T562JCX	0	T412FTB	6	T318JWX	14
R079BLG	1	S153BGK	6	N463DUG	14
N337GFC	1	J324DRC	6	P221KJB	15
R943KUB	1	F372CWU	6	P232JRB	15
R531YEE	1	R970GCU	7	W781NAW	15
R600SHN	1	M753XUG	7	V425LOA	15
R594TWG	1	P345MBU	7	L483BNL	15
C621FNC	1	S812GNW	7	P239JND	15
K624VUD	1	N067FSX	8	M211NKH	15
R587GSG	1	W285OAG	8	R047WLU	16
L336JLS	1	J946AWW	8	???????	16
F444DWT	1	B390XJX	8	???????	16
J995CLH	2	J940ERC	8	S438EUW	16
T393DPP	2	S915LBY	9	L191KHG	16
R050RHL	2	M650FJU	9	H???TSR	16

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L542TGK	17	RLX453	25	T114CDN	32
T050WUM	17	R234LFA	25	N344JWR	33
S041LNO	17	L243SGO	25	E353BAT	33
L134HBH	17	J479XSF	26	H554RNW	33
R297AOU	17	H093JDC	26	K814KWU	33
R971LGA	17	P492UUB	26	R998AAA	33
T093UUM	18	P932OWY	26	L329OYG	33
P866OUM	18	S663FUM	26	S427CUG	34
T229BBT	18	R801JUM	26	T355LDT	34
G812NAT	18	V863LUM	27	B283FLF	34
P531AWW	18	P882PWU	27	R968BUA	34
S395RNB	18	T721ABT	27	L681SKV	34
V140LVY	18	M648NPA	27	P072LLD	34
P877UUM	19	D514DDC	27	N851DBF	34
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G759UVU	19	H544RNW	27	M750PJX	35
P530SNM	19	T510OUA	28	P786UTX	35
K609UJX	19	S221AYG	28	L452EJA	35
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E205AJA	20	S484CRC	28	M212TDP	35
R708LFH	20	G950MCP	28	L447EBA	35
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S640XAX	20	G193GYG	28	J996LTU	36
V462MBT	20	V863LUM	29	K421FWU	36
HN83	20	L004OWW	29	H544RNW	36
G805KCX	20	N235XEB	29	T320KHD	36
P822YPD	21	S651ADL	29	H471BFK	36
S837KRW	21	P225MKW	29	N344CNW	36
N639GUG	21	L851OWW	29	N077CVF	36
H286TKY	21	L102KJA	30	J532WGM	36
P510OUA	21	S321RFU	30	V462NBT	37
T889OYG	22	S609UHL	30	P151XNW	37
V462MBT	22	H544RNW	30	T218KTR	37
D076YTN	22	K821HUA	30	L275UCM	37
N818ASX	22	N972WBR	30	N104GWU	37
T163LNB	23	K473WHG	30	M212TDP	37
N398LWU	23	T512ANW	31	T316AVY	37
P932OWY	23	P932OWY	31	P300KNB	37
S486MBD	23	V246KJX	31	F363CUG	38
S286KNW	23	R920BYG	31	M729OJB	38
R465AWF	23	G452CVH	31	M723AYG	38
S379OEW	24	P794NWJ	31	T442SHB	38
N602DWY	24	P537XJO	32	P920WNP	38
V462MBT	24	V283FLF	32	P944RUB	38
V863LUM	24	N997CFR	32	L598WBB	39
J630PBA	24	J734JHD	32	M870FUT	39
R613LAU	24	F783MBT	32	R691BWR	39

R002SFJ	39	P143GRJ	46	R784JHS	53
PIL5419	39	R447DGO	46	R889RRB	53
R279FUD	39	JAZ2082	46	G406YLF	53
T506TMR	39	B425LOA	46	R778HBW	54
R447DGO	39	L693HKJ	46	N574AWJ	54
T768YWX	39	R964GBU	47	N056UOJ	54
N398LWU	39	L745BFP	47	H525YCD	54
V462MBT	40	P306MSX	47	L234MVO	54
R940DNW	40	P920WNP	47	V261BBD	54
N997CFR	40	B538LVY	47	L190LUB	54
K343BEH	40	J267ANP	47	N768OGD	55
M665LAC	40	R652SLF	48	V174MUB	55
L759UPO	40	P660PGU	48	S275PRN	55
P584SWT	41	M263WUM	48	SGT401	55
M712WUG	41	P778	48	P007NWU	55
J335YNW	41	L074EJX	48	S164CUA	55
S438EUM	41	V626MDT	48	F529TBE	56
Y531LFM	41	R561FWV	48	N411HWR	56
S772UHE	41	T465KUB	49	K393VKE	56
N501FLG	41	L655PNW	49	S436NCF	56
P432KUK	42	R946DBE	49	G708MHH	56
R279FUD	42	N561FWK	49	R665SVN	56
R331WBC	42	T862KLK	49	S419RWP	56
T916RUB	42	T551LDB	49	R070HUM	57
T190FVV	42	T889PBU	49	M941UUA	57
R875EAG	42	T297OWY	50	V207LCP	57
P757SYG	42	N446LWU	50	R405BNW	57
Y503GAG	43	P245VGO	50	J413GVH	57
V462MBT	43	L492CKE	50	D912FSP	57
L958JDC	43	J925AWW	50	T593WUG	57
P440RUB	43	K335EYG	50	T884BBY	57
T894OWG	43	R339URM	51	R298FNW	58
S180CNW	43	V013KGT	51	S010KNW	58
V646GVW	44	L936CGA	51	T047BBT	58
W018LAJ	44	V734EAY	51	N469EBV	58
T760SUG	44	P943RUB	51	R729EHD	58
K240BRJ	44	R726HNW	51	V319LWN	58
T801FAN	44	M205HVC	51	T854LVU	58
P920WNP	44	N489LWX	52	P465OUM	58
C59?AUM	44	N224HWT	52	R122FWR	59
S065AWW	45	H778VGF	52	L978OWY	59
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H031YJD	45	T273NUB	52	Location F	
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M205HVC	45	P465UHS	53	N829TCG	6
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V140LVY	14	HIL3358	16	M650FJU	11
P580KDC	14	G376PWU	16	G425XJS	12
T028JVW	14	R440OEF	17	L182YR?	12
P736PWU	14	P221KJB	18	P869CFR	13
T318JWX	14	P345MBU	20	R224ECX	13
P221KJB	14	M211MKH	22	P520MLK	13
M211NKH	16	P580KDC	24	S467UKW	13
R440OEF	16	CDZ8686	25	H850SCX	14
L134HVH	17	R521EWK	26	L411OWR	14
P877UUM	19	N471MWT	26	V140LVY	15
HUWB183	20	P028JVW	29	R738JPK	15
N471MWT	21	P877UUM	29	P162SDP	16
R521EWK	22	V110SCX	30	P408OWF	16
W781NAW	27	S771FWY	30	L191KHG	17
S771FWY	28	P882PWU	32	F041LNO	17
P492UUB	28	R120PKX	33	P221KJB	18
P882PWU	28	J880JDV	34	T321TJN	18
S221AYG	29	L134HVH	35	S114CWY	19
S427CUG	34	N851DBF	37	GIL612	20
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P786UTY	35	N117VNH	41	S347NKW	20
P020KBP	36	L210UAP	49	S924CTE	21
T320KHD	38	P786UTY	54	E746YKX	21
R691BWR	40	P306MSX	54	S387KRW	22
L210UAP	41	T840YET	55	P204TRH	22
T840YET	44	N489LWX	56	N033CAK	22
T020GUG	44	V044LCX	56	M211NKH	23
M462MBT	44	R952HWT	56	P510OUA	23
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P306MSX	48	Location H		P635NWX	24
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R324GUB	54	V920MKM	2	CDZI686	26
V138FRN	55	T778CBY	3	R181HUM	26
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V207LCP	58	G376PWU	4	G029WNE	27
J413GVH	58	R572UOP	5	R234LSA	27
R029KTO	59	K945CDC	6	N471NWT	28
T593UUG	59	V593KWU	7	T647UUM	28
T884BVY	59	P232JRV	7	N804YBD	29
R298FNW	59	L465WHT	8	T510OUA	29
T047BBT	59	P706JJX	8	S164TNB	30
		M760JFR	9	P028JVW	31

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N495DFR	36	G406YLF	56	H986COE	4
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G524HUB	38	T840YEG	57	N489FSM	5
L447EBA	38	R212DNW	57	V089SAT	5
N851DBF	38	E165LHT	57	H573SJX	5
N077CVS	39	L693HKJ	58	M097UJO	5
P218KTR	39	S591OGW	58	R128ECP	5
L275UCN	40	V044LCX	59	S010AWY	5
S258MBT	40	L443JOB	59	K626XJX	6
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S363CUG	42	R952HWT	60	N711FYG	6
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	43	G143SKH	0	S294NUG	6
S438EUW	44	S756VAX	0	H741EBP	6
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V373EWG	45	M213JBB	1	M937RHD	7
S440VUX	45	S807LLM	1	J190NHD	7
K240BRG	46	N337GFC	1	S093MRA	7
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P143GRJ	48	P027KYD	1	R313SBU	7
R447DGO	48	P342HRW	1	R523MDD	8
P465UHS	48	H155EBJ	2	R466NMJ	8
V396ERG	49	S835XHE	2	V216DAH	8
N459YTV	49	A990EBL	2	S107JRA	8
N160VNM	50	S582GMV	2	M428HBF	8
L210UAP	50	N116NEU	2	S153BGK	8
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T566TWR	51	J995CLH	3	B482RFB	9
M166SNN	51	T393DPP	3	N008AOF	9
T943RUB	52	K584KVH	3	V518DCX	9
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M205HVC	53	N503LVK	3	L096LWT	9
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R046AUM	53	N945LWU	3	SBZ5664	9
H778VGF	54	T945VWU	4	N067FSX	10

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N829WPY	10	V901DBF	15	S963MDN	21
K156GWX	10	H377VUB	15	V490FRB	22
R345WLA	10	N273GRF	15	S438GNW	22
W285OAG	10	V590FKY	16	G805KCX	22
B390XJX	10	S830GWY	16	P822YPD	22
K305RDF	10	N623AYB	16	R720VFC	22
N209HKX	10	P814HWG	16	V392EWF	22
M120WTU	10	P232JRV	16	L347RWX	23
P106JKW	11	L483VNL	16	F895ACP	23
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V576HRO	11	F078RLB	17	D076YTN	24
J964YWJ	11	N015ORW	17	N031XOX	24
S697THL	11	R775EWV	17	R015SOK	24
P481GFC	11	M281XUB	17	V110KGT	24
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T670VAX	12	T498JHD	18	S084ATX	25
J537VFS	12	P686XYG	18	S750RFE	25
V202EPY	12	H853HNK	18	M537TNW	25
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P165YFT	12	R971LGA	18	P821UWR	25
J209EHD	13	P866OUM	18	R465AWF	26
R163VDT	13	S395RNB	19	N602DWY	26
V329KCP	13	P531AWW	19	R368SVA	26
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B703VHD	13	P083UWR	19	A987BAA	26
G926MKW	13	L752PWX	19	K532DLS	26
M605CAP	13	S172NHH	19	L739NUM	26
H166UDT	13	E321HHD	19	L243SGO	26
F016VEF	14	S815AUM	19	J626FFM	27
H796JLJ	14	G294SFW	20	H784ECX	27
N415VRB	14	K609UJX	20	F625CUB	27
R589PRH	14	M978TFR	20	M941WUA	27
P091FOB	14	G622FOF	20	S151VUA	27
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P100KPO	14	V486MWU	20	N275CWF	27
J543VTG	14	V550HPR	20	H093JDC	27
P964OWY	14	V481KEG	20	M478MJV	27
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T305WWT	15	R708LFH	21	L515KVO	28
N200AVE	15	S640XAX	21	S581SCV	28
B659XSP	15	P345MBU	21	D925LKY	28

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R210TUY	28	N860UUA	35	S300CYG	42
T721ABT	28	V467JBA	35	H824VUA	42
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R286XVG	29	N673BVC	36	J060YUA	43
G950MCP	29	R483GUB	36	P584SWT	43
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R661HWT	30	S220CWW	37	P014XVK	43
S651ADL	30	R730WKW	37	N784DDT	44
P225MKW	30	L336LUB	37	M003SYG	44
P106WWW	31	V246KJX	37	T188SWC	44
S710NRF	31	B990OBD	37	V244NUG	44
M008TJO	31	M816FJR	38	T668ATY	44
L245JCX	31	N344CNW	38	R331WVC	44
R565SWE	32	J532WGM	38	V585MBT	44
S609UHL	32	S145URJ	38	M918KOF	44
K821HUA	32	T728OAG	38	R881LUG	45
P932OWY	32	N355GWR	38	R175ODK	45
R920BYG	32	E307VGJ	39	T894OWG	45
G452CVH	32	R580NNW	39	V646GVW	45
M316UWW	32	L381FPM	39	W018LAJ	45
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K967TCX	33	N104GWU	39	M558GBC	45
A992AUR	33	T316AVY	39	S378FTE	46
S362DYG	33	V567LOM	40	V500FKU	46
S175CUM	33	P300KNB	40	V613KUB	46
B882PWU	33	V395EAY	40	P328NBA	46
B997AEH	33	RJI1125	40	T801FAN	46
P794NWJ	34	N132AEB	40	V700RCX	46
P537XJO	34	H171UWA	40	H280RMS	47
J734JHD	34	P191ANW	40	P882SAG	47
V130MWR	34	P492UUV	40	R503JHU	47
R120PKX	34	G944WMT	41	S829THL	47
T114CDN	34	R279EUB	41	N226SWU	47
P243VFB	34	K318UJX	41	P929ABK	47
S796EWJ	35	K996LYR	41	G383JKU	48
R148HWU	35	S925YUY	41	N447KWW	48
K814KWU	35	T708OUV	41	N893DHL	48
L239OYG	35	PIL5419	41	E858LVN	48
T355LDT	35	P768YWX	41	R964GBU	48
R968BUA	35	N997CFR	42	L745BSP	48
N274CWE	35	N398LWU	42	P920WNP	49

P839TDN	49	N056UOJ	56	M357XER	8
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R838YVV	49	K803SAT	57	V278LRW	8
L619ECP	49	K484JWU	57	V324DVK	8
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K688AAJ	50	H997HAL	58	V133PNW	9
R652SLF	50	H129XUG	58	J946AWW	10
P660PGU	50	T056DNW	58	S915LBY	10
V078GWB	50	P643YWY	59	B048PRW	10
S318SNA	50	L964GNF	59	P637UNM	10
J740JVL	51	G708MHH	59	L228SDU	11
S528LRV	51	M941UUA	59	P592SWT	11
S751DNW	51	R709HUM	60	D509HFB	12
R561FWV	51	R405BNW	60	M167OTF	12
N737DYG	51	V723DPJ	60	R759CHL	13
H982RMR	51	H668RWR	60	K990LSY	13
R738XEC	51			R267OUG	14
L637FPC	52	Location J		P913AWX	14
R778DNV	52	R756BDW	0	K159FNU	15
N995LLB	52	N542SJT	0	N463DUG	15
K643WJX	52	R600SHN	1	M950OUY	15
P297OWY	52	R595TWG	1	N562YVO	15
N446LWU	52	K624VUD	1	D106THD	16
P245VGO	52	L336JLS	2	P239JND	16
L492CKE	53	E855YWB	2	K789GWR	16
V013KGT	53	P680FJH	2	R047WLU	16
L936CGA	53	R050RHL	3	V023DTN	17
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A357NUB	54	N076CWW	4	S608BTL	18
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R726HNW	54	L542TGK	5	G812NAT	19
N224HWT	54	V107LGF	5	V304LVH	19
N915BWU	54	N497VND	6	V198LOA	19
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S896ANW	55	E733NJX	6	P530SNN	20
E173NCX	55	L443WLO	6	T662UUG	20
N981YNE	55	H617CND	7	G760EPK	20
T026LNA	55	P409PUG	7	F336YOH	20
E280FRX	55	V276WNH	7	M071PVM	21
IAZ1847	55	R168HRP	7	K249VCX	21
R889RRB	56	T412FTD	7	V373EWG	22
R778HBW	56	J324DRC	8	N572EBW	23

H286TKY	24	M665LAC	42	R717DCX	60
P889OYG	24	A994LGF	42	S498FUB	60
P274RDS	25	N501FLG	43	V319LWW	61
K156JVF	25	P916RUB	43		
P580KDC	25	P190FVV	43	Location K (2 nd Before)	
P307KHP	26	F645BWU	43	M068DEC	0
S379OEW	26	S334SWE	44	T600SWT	0
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R613LAU	27	P757SYG	44	D447DLE	0
RLX453	28	S180CNW	45	D817GUE	0
R543GOJ	28	T760SUG	45	J334SPH	0
H246XHD	28	K367UFV	45	P058XWX	1
M671ENJ	29	S065AWW	46	N593GWR	1
R801JUM	29	E353VAT	46	H218YJX	1
M648NPA	30	S707APJ	47	C054BEC	1
R381KWY	30	G846MDM	47	N452WJA	1
K468VPJ	30	E668CHD	48	M534GHE	1
K007LNS	30	H141XJX	49	W486MCN	1
P877UUM	31	JAZ2082	49	P595RUM	1
L851OWW	31	V538LVY	50	R958LWY	1
S321RFU	31	L074EJX	50	T527OLA	1
J086LBV	31	M482VWX	50	M258TWY	1
N972WBR	32	S128FUA	51	T165UVS	2
K473WHG	32	G814MWU	51	P582URW	2
G523MVH	32	G465KUB	51	D322URD	2
M623YDM	33	L655PNW	52	S139KHA	2
R314AET	33	N5761FWX	52	N964GWW	2
M263TYG	33	T862KLX	52	L059HUE	2
H866VYG	34	T889PBU	53	K165TAT	2
N997CFR	34	P880JHE	53	T702DDC	2
S783MBT	34	M017AAP	53	N283	2
R353VAT	34	K097WNB	54	V781SAT	2
R998AAA	35	R339URM	54	N283GLY	2
L681SKV	35	P365MBA	54	S046TNF	3
J880DJV	35	T273NUB	55	W873XGJ	3
K103GUA	36	P465UHS	55	K307XGS	3
C804DUA	37	R527CGY	55	R431CNW	3
G062MWT	37	R784JHS	55	P675UUB	3
K421FWU	38	M906PCM	56	C179MTV	3
H554RNW	39	M335THD	56	P529KRD	3
H891TWT	40	E745UUA	57	W483YHD	3
T442SHB	40	F275PRN	57	M829NOS	3
L443JOB	40	P007NWU	58	T534LWX	3
V457FRC	41	N441HWR	58	G785WBR	3
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R940DNW	41	V108JKM	59	T817UWY	4
G299LJX	41	R665SVN	60	R158KOL	4
K343BEH	42	S419RWP	60	R131JGJ	4

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R968HWO	4	N291WOF	8	N548CWJ	12
M887TWY	4	V572GBY	8	N526UPK	12
N196DVT	4	N634SPL	8	W574ACX	12
R607CBE	4	LIL0341	8	R465LUM	13
M471UWT	4	S603BPP	9	R420JHU	13
G225TNE	4	R172ECX	9	P428EHC	13
R823VRX	4	M659AWR	9	K126RCX	13
N205FWY	5	R345WLA	9	M307UWX	13
N659DWY	5	V907FVN	9	R846AOA	13
C930SWW	5	K606FWT	9	V426GKH	13
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L918XCU	5	S026FNW	9	J549KRN	13
G098VRJ	5	M998KLO	9	V272JHW	13
M423OSO	5	N953KRH	9	T840MAU	14
P523JOT	5	V845LVH	9	R943KUB	14
C054BEC	5	M383EWS	10	H584KWL	14
N510CWE	5	H060YJD	10	P243VFB	14
K176STN	6	P387VUB	10	P838HVP	14
V441ETF	6	J427PUD	10	G862LUA	14
F676XWW	6	L973CVH	10	V893NUA	14
R787FWU	6	N951SPL	10	H480UWR	14
R976YDT	6	R015SOK	10	K958GWA	14
T680AFR	6	P563XUG	10	D976KUM	14
M008TJO	6	V859LVH	10	W353MEU	14
L673YSJ	6	V664KWY	10	G537KET	15
R946ABE	6	V578PDN	10	V438SOT	15
L755CJF	6	L770BTN	11	R782LHU	15
T080NWU	6	K504YUR	11	M426UUB	15
W574VBV	7	S622BVK	11	T259BPO	15
F895ACP	7	G676KWG	11	G079UVU	15
V392EWF	7	H040WKH	11	L754KTM	15
V756LNW	7	M120WJU	11	K744EWX	15
KCT0	7	H057LRU	11	W552LDX	15
V774KWR	7	S407BTO	11	W237MJU	15
P702DDC	7	H858COU	11	K087HKU	15
R728PFC	7	R578EWY	11	L881PWF	15
S890XOL	7	W663CWR	11	H763XUA	16
SBZ5664	7	N858TTY	11	T748BUA	16
G770DJH	7	M507JPW	12	D300KUB	16
S224BUB	8	455AJW	12	N168DBW	16
C364YEF	8	S052CUM	12	N798LWU	16
N617LUA	8	M846PEF	12	T952KHD	16
V395FFJ	8	K342WOE	12	P100KPO	16
R881SBY	8	R868BJW	12	W943MHL	16
K028THD	8	V116GWE	12	N203BRJ	16
B395FSJ	8	H166UDT	12	J543PFC	16

T543SHC	16	N593BOE	21	J523MKD	25
E450AMR	17	N198XCH	21	V231PUM	25
V886OGU	17	T528MOK	21	V145GBU	25
K010HNG	17	R507JAT	21	F471GCH	25
T414OKY	17	S683GUD	21	R794YCH	25
T256LFC	17	V503KDG	21	J205DJC	25
V910ELP	17	N147JWW	21	V706KUY	26
L725PYG	17	L465CNS	21	F476VFX	26
R933WBC	17	H345RWB	21	P166WWW	26
T629KHL	17	S927RJH	21	N165ELO	26
M400VUM	17	N431GCP	22	L027GVH	26
H615RWY	17	R027SHL	22	E523HBC	26
V146FEH	18	V908LAF	22	P7600VUB	26
T381BTN	18	R917DPW	22	R730WKW	26
M525WWT	18	S083CGJ	22	M740TUM	26
K235FUB	18	P889WKH	22	G874LAG	26
F708AWO	18	P676XNW	22	W157TLB	26
H997LAS	18	S662VKW	22	L063MRA	27
GIB308	18	S993TCG	22	R659GWT	27
N835VAU	18	L659KRO	22	K469WJT	27
S204UJW	18	V530GVM	22	R219EWT	27
W642HSA	18	J115UOJ	23	P932EOG	27
L816PWU	18	K803SAT	23	P557UKH	27
V736LUM	19	L494JUR	23	N736XRA	27
R600PRB	19	F184RCW	23	V060MUB	27
R655THL	19	T480RWT	23	T326UUG	27
K763HKW	19	S523DUG	23	J801GCA	27
P813KKU	19	J597VOP	23	V738KKM	27
L035JMJ	19	F429EWK	23	E726PWT	27
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M535OCX	19	D133DAY	23	N332YVU	28
V498LWR	19	N735OVV	23	J717OLJ	28
W385YHD	19	E410KYM	24	K793TJX	28
H655GLV	19	V424JES	24	T744UWU	28
N842CUA	20	N742HWW	24	S733BWM	28
J452XRH	20	H811HUA	24	MDZ0967	28
R492KMJ	20	R362NWR	24	S581SCF	28
P876WWU	20	N913LNW	24	R669JUA	28
N291WOF	20	J254MVH	24	M564ENH	28
P822YBP	20	M815PVH	24	L616PYG	28
R715CUB	20	V942KWU	24	N351TMV	29
V337DFT	20	L918XKH	24	R483GUB	29
SAZ3131	20	S506LVT	24	N069VNH	29
P889OYG	20	S948LGW	25	N398LWU	29
W466LAG	20	P772DUX	25	J603CNW	29
V613KUB	21	P157PUB	25	W190XCX	29
N745BAJ	21	H275HCR	25	K497YUR	29
V091MWT	21	J474YNW	25	L204UNV	29

K821HUA	29	J227EES	34	C307TGM	38
F020UBO	29	M977HFW	34	P684FTS	38
G801KAT	29	M851DBF	34	M442SWU	38
V817FBA	30	M165EFB	34	K097WNB	38
R148HWU	30	J584VBL	34	N391AAV	38
R904BYG	30	V833FRB	34	T435SHB	38
RCK60	30	T372UVT	34	R455KYG	38
G479OKH	30	T355LDT	34	R574GUA	39
B551KYG	30	M945TAJ	34	M411YFM	39
N612URJ	30	S124DUG	34	J124GHD	39
K514HUB	30	N525DWW	34	G187KEW	39
R537XNP	30	V728NVH	35	ESS068	39
B944UWU	30	T942AVC	35	M841PEF	39
S175RKY	30	AF4213	35	K649KNW	39
S416BWY	31	R938CWU	35	R775EWV	39
P841PWT	31	L329LPU	35	L234MVO	39
R946DBE	31	S220CWW	35	L642PWY	39
W030VCX	31	N117VNH	35	R117EWX	39
N069VNH	31	R217EUR	35	G565BRU	39
CG8	31	S291RBU	35	S739SWB	40
N825BNE	31	S811UGY	35	K383DDC	40
T568AVN	31	J495MCX	35	S175CUM	40
W255FUM	31	P117SFL	36	K798JUM	40
P935VUA	31	P882PWU	36	W066YOV	40
F824SHH	31	S553BWT	36	R711YKV	40
K018GBE	32	E692CND	36	V016LCX	40
P155HBU	32	N517BWJ	36	L283KEE	40
M958BCA	32	T778LWX	36	M136SKF	40
L870OWY	32	P487RFB	36	V283FLF	40
F172XWX	32	B983RTK	36	R468NNW	40
M113WCW	32	M879EWW	36	L041PVF	40
H716VWP	32	J404DUG	36	B909D1	41
G552NEA	32	R059AWB	36	M477TJX	41
S510ADB	32	P208VRO	37	H171UWA	41
M529TCX	32	P782KMO	37	V284WJX	41
D448JWX	32	S146ENW	37	N355GWR	41
W226MBR	33	K856UVU	37	P340SUB	41
L725PYG	33	M365RVH	37	N358MWT	41
A996TJG	33	R478EWX	37	R864DDV	41
G677HCK	33	R040GEG	37	M833DHP	41
P095PRF	33	F060CUA	37	W572CWR	41
R607ETC	33	P455VUG	37	M870ARP	41
V241DBF	33	L245JCX	37	J880VRX	42
V158LWT	33	P169VRG	37	T839JLH	42
S300TWX	33	S528BUB	38	W803DNW	42
G198OWR	33	D257ALT	38	P377EPY	42
H997SLL	33	S404KLT	38	P289RUM	42
T723KVR	33	V734EAY	38	N491LVK	42

J717WAC	42	F242SUG	46	T241MLC	51
J989JUE	42	V318DJR	46	T152XBV	51
R224ECX	42	S128FUA	47	PIL5419	51
J995JLD	42	R245GBM	47	L343TAY	51
R870BWX	42	V500FKU	47	M252KKV	51
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H292WWT	43	K467XPC	47	J987EMB	51
P515TWT	43	L100VNV	47	J172DBC	51
S422BUB	43	F923YHD	47	K946CDC	51
N812ADN	43	T396JHD	47	A997FLA	51
A132AEB	43	M362SWX	47	N734DYG	51
V705NVY	43	T465UHS	47	N056UOJ	52
T839XUG	43	P755VGG	47	P669TWU	52
R628TCH	43	J880DJV	48	M194NOC	52
W921GBT	43	S693AWY	48	P432KUK	52
S103CRE	43	R428BWS	48	F565CCP	52
S502VHE	44	S598JBT	48	P496UUB	52
V789LWR	44	P772BWX	48	F181FWR	52
C711DWR	44	T668ATY	48	T947JJX	52
R093DNW	44	S164FUA	48	L906YGG	52
L826PMM	44	S044JBT	48	K617WHD	52
R172CWU	44	T920WNP	48	K081JUB	52
S695DUG	44	T337CVV	48	J740JVL	53
L381FPM	44	M027VNW	48	R150ECP	53
J113XWC	44	P807LWB	49	M322TME	53
N513NGJ	44	RJI1125	49	W108RUJ	53
S667LPY	44	L837YTN	49	V658KHD	53
V227MUB	45	N558BVC	49	T391WUM	53
L490HAN	45	P483UWU	49	S737KUT	53
N422MWR	45	W108RUJ	49	E496OAJ	53
S438EUM	45	P551NWU	49	G832WMF	53
J336SVN	45	R108BUJ	49	R792ONW	53
G440KHD	45	J237RVC	49	R330UKU	53
S134JNK	45	P588VWX	49	J818YWT	54
D967JWY	45	T241MPU	49	E595WKY	54
K010XXC	45	L694SYJ	49	W134ULF	54
C585MBT	45	N923VFF	50	H196YVH	54
J406MPP	45	K673TTN	50	L427MJX	54
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P478SRO	46	M583JBD	50	M964ENH	54
R548UOP	46	M625EHT	50	L043DVH	54
N822BWW	46	M860UUA	50	L693HKJ	54
C815YFD	46	L515KVO	50	N460AAL	54
E214JVT	46	C272KTW	50	S927DBD	54
W715RFA	46	L336LUB	50	B390XJX	55
V626MDP	46	P455GNB	50	N886WND	55
R289SHY	46	P743SBD	50	E135ECP	55
V174MUB	46	M721RCX	51	J521CWT	55

N425SOF	55	L248RRV	59	S937	3
V572GBY	55	J585MJX	59	N998	3
P045ONW	55	F315HAJ	59	L605	3
H543AVH	55	E036MYU	59	W604	3
T786VWU	55	F377WHD	59	M374	3
P359OKY	55	V819UAY	60	S602	4
M268BLP	55	N945XVM	60	S294	4
T198ONT	56	R570OTD	60	G063	4
M788PVC	56	L370CPK	60	P452	4
N537LWY	56	H182FLV	60	N200	4
J085FJX	56	M466OVN	60	K183	4
E002FTN	56			S139	4
T535JEW	56	Location K (3 rd Before)		P762	4
C136OUG	56	Observer 1		W270	4
M085GAK	56	P842	0	N519	4
E863ACH	56	M235	0	P609	4
T354JCP	56	T004	0	P266	5
M516PAB	56	W181	0	S032	5
T085BNW	57	R388	0	P261	5
W950WBT	57	S308	0	L364	5
S232SWW	57	T207	1	H997	5
R638KNW	57	N576	1	W037	5
A357NUB	57	R775	1	N953	5
M216UWJ	57	T375	1	N391	5
M690UIG	57	V492	1	N753	5
R993GBB	57	V839	1	K946	5
N340KWW	57	S952	1	R223	5
G520SVS	57	T906	1	T685	5
W438WEG	57	P165	1	S317	5
P018SNS	57	R410	1	R744	5
R833NCN	57	R308	1	T722	6
P641OKH	58	H510	2	V415	6
S334SWE	58	MAA	2	M155	6
T938KVH	58	C915	2	M008	6
V197KWY	58	W331	2	S280	6
P612OHJ	58	T813	2	W535	6
R171HTG	58	S046	2	H164	6
R792LKN	58	P459	2	N878	6
F768GGK	58	P873	2	K646	6
N288JUB	58	M451	2	N220	6
N031RCP	58	R486	2	M302	6
R532GGK	58	V714	2	S207	7
T526SNH	59	S006	3	N397	7
M723JWP	59	N821	3	D731	7
F096ACP	59	V091	3	R345	7
G005OWE	59	H451	3	E954	7
R945BNS	59	S040	3	V942	7
W398YJX	59	R746	3	F801	7

M703	7	V329	11	L115	17
J034	7	S146	12	S734	17
S870	7	J870	12	N796	17
V053	7	K634	12	S002	17
K941	8	K018	12	S785	17
T721	8	G403	12	R764	17
R810	8	L936	12	S241	18
V800	8	N329	12	W764	18
V221	8	G138	12	C753	18
M398	8	L826	12	F632	18
L850	8	P303	12	M916	18
V343	8	L637	12	V421	18
N517	8	R279	13	T080	18
H443	8	J717	13	V837	18
R437	8	G805	13	L452	18
R388	9	R244	13	G225	18
W672	9	R001	13	T952	18
P180	9	M326	13	G747	19
T834	9	J194	13	R548	19
T059	9	G537	13	N774	19
T241	9	P964	14	W943	19
S519	9	T326	14	R544	19
V859	9	E321	14	E415	19
T535	9	C408	14	K605	19
H060	9	F924	14	EIL7939	19
W446	9	F066	14	P510	19
R056	9	J190	15	E755	20
P411	10	H763	15	F857	20
F244	10	H853	15	N811	20
D618	10	W906	15	R362	20
P022	10	N636	15	V088	20
P145	10	T543	15	R148	20
R724	10	P243	16	J328	21
P834	10	M998	16	N575	21
K016	10	M320	16	S322	21
R883	10	5PTC	16	M455	21
LCA	10	P027	16	V185	21
V022	10	D486	16	W657	21
R537	11	L124	16	M525	21
P024	11	K330	16	R940	21
V070	11	F644	16	G457	21
V280	11	R011	16	L457	21
P885	11	N209	16	IUI7760	21
E523	11	P990	17	L553	22
H692	11	M400	17	P528	22
K672	11	S749	17	A259	22
F831	11	L085	17	L948	22
P552	11	R537	17	D820	22

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F717	22	P737	26	S094	31
K166	22	L174	26	M859	31
K940	22	H858	27	P557	31
N169	22	K757	27	J734	32
R757	22	M416	27	N337	32
F231	23	J882	27	N337	32
V956	23	R117	27	N165	32
R189	23	R092	27	R706	32
N775	23	K097	27	E653	32
R938	23	K548	27	N385	32
E349	23	W912	27	M734	32
H260	23	S124	27	R953	32
N397	23	L316	28	P011	32
P877	23	K945	28	P948	32
T261	23	L735	28	S461	33
P623	23	K945	28	T396	33
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M235	24	P907	28	W787	33
C596	24	TRW1056	29	T790	33
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V467	24	P196	29	S548	33
M800	24	S227	29	P959	33
R885	24	R865	29	L913	33
B011	24	R238	29	S918	33
P260	24	L596	29	F708	33
R513	24	E977	29	P750	33
K381	24	N465	29	G552	34
R297	25	P005	29	H084	34
S506	25	L427	29	H037	34
V060	25	S186	30	N733	34
V674	25	R753	30	R560	34
K733	25	T638	30	T431	34
N716	25	K821	30	R141	34
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N716	25	M243	30	V646	34
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E214	25	R028	30	F393	34
S609	25	T408	30	W790	34
N106	25	T723	30	R492	34
L968	26	N231	30	M040	34
S575	26	P139	31	P932	35
S221	26	N115	31	E462	35
J971	26	S553	31	D133	35
L651	26	R775	31	M448	35
R068	26	G058	31	R520	35
H277	26	D826	31	R545	35
S545	26	P786	31	R009	35

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G697	35	R224	39	G697	43
M879	35	R500	39	W043	43
G694	35	N355	39	P087	43
V594	35	B194	39	R104	43
N825	35	M860	39	M330	44
M248	35	FWM6Y	39	M376	44
J237	35	J603	39	T565	44
P380	35	N473	40	G466	44
M977	35	R307	40	M576	44
L094	35	S153	40	L790	44
P867	35	W066	40	R881	44
R090	36	S184	40	W800	44
K560	36	R967	40	K480	44
R331	36	P684	40	F181	44
?620	36	S019	40	N168	44
V669	36	V387	40	V714	45
L673	36	IVZ6016	40	H254	45
T395	36	T728	40	T219	45
S737	36	M433	40	V435	45
R827	36	N102	41	R465	45
S416	36	P593	41	V103	45
V869	36	F434	41	S422	45
L245	37	N851	41	T668	45
T437	37	F041	41	J555	45
D119	37	S547	41	T313	45
L453	37	N169	41	M307	45
T553	37	R730	41	H853	46
J580	37	K053	41	V956	46
T312	37	M928	41	R964	46
R166	37	N565	41	V462	46
P721	37	H361	42	N236	46
T843	37	L985	42	N236	46
T509	37	D776	42	P744	46
P083	38	K374	42	T393	46
L673	38	H917	42	V917	46
R633	38	V174	42	M117	46
M558	38	L037	42	N201	46
K383	38	K798	42	N359	47
N721	38	S489	42	N612	47
J989	38	J373	42	N447	47
V870	38	M231	42	R482	47
S450	38	L171	43	H986	47
P915	38	M228	43	P475	47
T300	38	W692	43	C920	47
F926	39	N549	43	W220	47
V426	39	P451	43	T527	47
W680	39	M682	43	L693	47

P595	47	R626	51	S974	55
R323	48	G697	51	K149	55
S544	48	S293	51	N524	55
J987	48	N651	51	T674	56
R313	48	A986	52	W917	56
V180	48	L370	52	R652	56
T234	48	V774	52	M492	56
V904	48	L855	52	P744	56
S792	48	N046	52	R405	56
G369	48	P538	52	V347	56
T492	48	T469	52	L579	56
T958	48	V390	52	R521	56
J635	49	W371	52	T329	56
V269	49	J690	52	V718	56
R889	49	V927	52	V214	57
N278	49	J484	53	T801	57
R564	49	R310	53	FOE616V	57
V103	49	H863	53	P776	57
P396	49	V500	53	R917	57
T285	49	S172	53	P659	57
R050	49	N039	53	N634	57
D328	49	L755	53	A989	57
N942	49	N382	53	N576	57
V718	49	R074	53	V607	57
S9Z6572	50	R926	53	K339	57
K189	50	J220	53	G311	58
T482	50	R584	54	S451	58
J743	50	G237	54	M140	58
G364	50	J977	54	E789	58
F907	50	M957	54	H631	58
T652	50	V626	54	R254	58
V455	50	R243	54	L906	58
N379	50	T152	54	M937	58
W272	50	H173	54	W424	58
P761	50	N517	54	C012	58
M322	50	K513	54	T001	58
L991	50	K664	54	W781	59
FWW591Y	50	V337	55	K962	59
L381	50	M261	55	T461	59
S133	50	C949	55	F114	59
L336	50	V863	55	K848	59
N737	51	R314	55	R945	59
V554	51	R993	55	P045	59
H412	51	L703	55	S149	59
V323	51	G369	55	R741	59
R726	51	R713	55	R548	59
R818	51	M028	55	L593	59
C484	51	L603	55	R447	60

S438	60	M374	3	K941	8
G710	60	S602	4	T721	8
R902	60	S294	4	R810	8
M238	60	G063	4	V800	8
T069	60	P452	4	V221	8
2976AT	60	N200	4	M398	8
R130	60	K183	4	L850	8
		S139	4	V343	8
Location K (3 rd Before)		P762	4	N517	8
Observer 2		W270	4	H443	8
P842	0	N519	4	R437	9
M235	0	P609	4	R388	9
T004	0	P266	5	W672	9
W181	0	S032	5	P180	9
R388	0	P261	5	T834	9
S308	0	L364	5	T059	9
T207	1	H997	5	T241	9
N576	1	W037	5	S519	9
R775	1	N953	5	V859	9
T375	1	N391	5	T535	9
V492	1	N753	5	H060	9
V839	1	K946	5	W446	10
S952	1	R223	5	R056	10
T906	1	T685	5	P411	10
P165	1	S317	5	F244	10
R410	1	R744	6	D618	10
R308	1	T722	6	P022	10
H510	2	V415	6	P145	10
MAA	2	M155	6	R724	10
C915	2	M008	6	P834	10
W331	2	S280	6	K016	10
T813	2	W535	6	R883	10
S046	2	H164	6	LCA	11
P459	2	N878	6	V022	11
P873	2	K646	6	R537	11
M451	2	N220	6	P024	11
R486	2	M302	7	V070	11
V714	2	S207	7	V280	11
S006	3	N397	7	P885	11
N821	3	D731	7	E523	11
V091	3	R345	7	H692	11
H451	3	E954	7	K672	11
S040	3	V942	7	F831	11
R746	3	F801	7	P552	11
S937	3	M703	7	V329	12
N998	3	J034	7	S146	12
L605	3	S870	7	J870	12
W604	3	V053	8	K634	12

K018	12	S785	17	N169	22
G403	12	R764	17	R757	22
L936	12	S241	17	F231	23
N329	12	W764	17	V956	23
G138	12	C753	17	R189	23
L826	12	F632	17	N775	23
P303	12	M916	17	R938	23
L637	13	V421	17	E349	23
R279	13	T080	18	H260	23
J717	13	V837	18	N397	23
G805	13	L452	18	P877	23
R244	13	G225	18	T261	23
R001	13	T952	18	P623	23
M326	13	G747	18	J475	24
J194	13	R548	18	M235	24
G537	13	N774	18	C596	24
P964	13	W943	19	P381	24
T326	14	R544	19	V467	24
E321	14	E415	19	M800	24
C408	14	K605	19	R885	24
F924	14	EIL7939	19	B011	24
F066	14	P510	19	P260	24
J190	15	E755	20	R513	24
H763	15	F857	20	K381	24
H853	15	N811	20	R297	25
W906	15	R362	20	S506	25
N636	15	V088	20	V060	25
T543	15	R148	20	V674	25
P243	15	J328	21	K733	25
M998	15	N575	21	N716	25
M320	15	S322	21	N935	25
5PTC	15	M455	21	N716	25
P027	15	V185	21	S461	25
D486	15	W657	21	E214	25
L124	16	M525	21	S609	25
K330	16	R940	21	N106	26
F644	16	G457	21	L968	26
R011	16	L457	21	S575	26
N209	16	IUI7760	21	S221	26
P990	16	L553	22	J971	26
M400	16	P528	22	L651	26
S749	16	A259	22	R068	26
L085	16	L948	22	H277	26
R537	16	D820	22	S545	26
L115	16	5314WH74	22	M062	26
S734	17	F717	22	P737	26
N796	17	K166	22	L174	26
S002	17	K940	22	H858	27

K757	27	J734	32	V594	35
M416	27	N337	32	N825	35
J882	27	N337	32	M248	35
R117	27	N165	32	J237	35
R092	27	R706	32	P380	35
K097	27	E653	32	M977	35
K548	27	N385	32	L094	36
W912	27	M734	32	P867	36
S124	27	R953	32	R090	36
L316	27	P011	32	K560	36
K945	28	P948	32	R331	36
L735	28	S461	33	?620	36
K945	28	T396	33	V669	36
L735	28	R946	33	L673	36
P907	28	W787	33	T395	36
TRW1056	28	T790	33	S737	36
V276	28	P377	33	R827	36
P196	28	S548	33	S416	37
S227	28	P959	33	V869	37
R865	28	L913	33	L245	37
R238	29	S918	33	T437	37
L596	29	F708	33	D119	37
E977	29	P750	34	L453	37
N465	29	G552	34	T553	37
P005	29	H084	34	J580	37
L427	29	H037	34	T312	37
S186	30	N733	34	R166	37
R753	30	R560	34	P721	37
T638	30	T431	34	T843	38
K821	30	R141	34	T509	38
T394	30	V826	34	P083	38
M243	30	V646	34	L673	38
N460	30	W211	34	R633	38
R028	30	F393	34	M558	38
T408	30	W790	34	K383	38
T723	30	R492	34	N721	38
N231	30	M040	34	J989	38
P139	31	P932	34	V870	38
N115	31	E462	34	S450	38
S553	31	D133	35	P915	39
R775	31	M448	35	T300	39
G058	31	R520	35	F926	39
D826	31	R545	35	V426	39
P786	31	R009	35	W680	39
K514	31	P932	35	T931	39
S094	31	G697	35	R224	39
M859	31	M879	35	R500	39
P557	31	G694	35	N355	39

B194	39	R104	44	R313	48
M860	39	M330	44	V180	48
FWM6Y	40	M376	44	T234	48
J603	40	T565	44	V904	48
N473	40	G466	44	S792	48
R307	40	M576	44	G369	48
S153	40	L790	44	T492	48
W066	40	R881	44	T958	49
S184	40	W800	44	J635	49
R967	40	K480	44	V269	49
P684	40	F181	45	R889	49
S019	40	N168	45	N278	49
V387	40	V714	45	R564	49
IVZ6016	41	H254	45	V103	49
T728	41	T219	45	P396	49
M433	41	V435	45	T285	49
N102	41	R465	45	R050	49
P593	41	V103	45	D328	49
F434	41	S422	45	N942	49
N851	41	T668	45	V718	49
F041	41	J555	45	S9Z6572	49
S547	41	T313	46	K189	49
N169	41	M307	46	T482	49
R730	41	H853	46	J743	50
K053	41	V956	46	G364	50
M928	42	R964	46	F907	50
N565	42	V462	46	T652	50
H361	42	N236	46	V455	50
L985	42	N236	46	N379	50
D776	42	P744	46	W272	50
K374	42	T393	46	P761	50
H917	42	V917	46	M322	50
V174	42	M117	47	L991	50
L037	42	N201	47	FWW591Y	50
K798	42	N359	47	L381	50
S489	42	N612	47	S133	50
J373	43	N447	47	L336	50
M231	43	R482	47	N737	51
L171	43	H986	47	V554	51
M228	43	P475	47	H412	51
W692	43	C920	47	V323	51
N549	43	W220	47	R726	51
P451	43	T527	47	R818	51
M682	43	L693	48	C484	51
N114	43	P595	48	R626	51
G697	43	R323	48	G697	51
W043	43	S544	48	S293	51
P087	44	J987	48	N651	51

A986	52	W917	55	T069	60
L370	52	R652	55	2976AT	60
V774	52	M492	56	R130	60
L855	52	P744	56		
N046	52	R405	56		
P538	52	V347	56		
T469	52	L579	56		
V390	52	R521	56		
W371	52	T329	56		
J690	52	V718	56		
V927	52	V214	56		
J484	53	T801	56		
R310	53	FOE616V	56		
H863	53	P776	57		
V500	53	R917	57		
S172	53	P659	57		
N039	53	N634	57		
L755	53	A989	57		
N382	53	N576	57		
R074	53	V607	57		
R926	53	K339	57		
J220	53	G311	57		
R584	54	S451	57		
G237	54	M140	57		
J977	54	E789	58		
M957	54	H631	58		
V626	54	R254	58		
R243	54	L906	58		
T152	54	M937	58		
H173	54	W424	58		
N517	54	C012	58		
K513	54	T001	58		
K664	54	W781	58		
V337	55	K962	58		
M261	55	T461	58		
C949	55	F114	59		
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L703	55	S149	59		
G369	55	R741	59		
R713	55	R548	59		
M028	55	L593	59		
L603	55	R447	59		
S974	55	S438	59		
K149	55	G710	59		
N524	55	R902	60		
T674	55	M238	60		